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CLINICAL LECTURES,

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BY

ROBERT CARSWELL, M.D.,

Professor of Pathological Anatomy in University College, London; and of Clinical Medicine in University College Hospital.

GENTLEMEN:—Since we last met here two interesting cases have terminated fatally. The first of these was a case of disease of the heart; an opportunity has thereby been afforded us of verifying our diagnosis, of observing the morbid condition of the heart itself, and several other morbid conditions, which generally arise at some period, and as a consequence of the disease of the central organ of the circulation. Of these morbid conditions, the most marked, as well as the most frequent in their occurrence, and which were observed in this patient at his admission, were general venous congestion, anasarca, ascites, and what may, with propriety, be denominated congestive bronchitis. I shall make a few observations on each of these morbid conditions, as consequences of disease of the heart, before narrating to you the history of this case.

In regard to the state of venous congestion, and which was so well marked in this case, not only as manifested by the tumultuous, irregular, and laboured action of the heart itself, but also from the congested state of the extremities, particularly the inferior, the turgid and somewhat bloodshot eye, and the lividity of the nose, lips, and tongue; in regard, I say, to this state of venous congestion, I need hardly remark, that it is altogether to be attributed to the obstruction primarily situated in the heart, and is essentially of a mechanical nature. Whatever be the form of the morbid condition of the heart, whether it consists in disease of the valves of the auriculo-ventricular orifices, of those of the aorta or pulmonary artery, or of any modification of hypertrophy and dilatation, by which a disproportion arises between the capacity and muscular force of the two sides of the heart, a mechanical obstacle arises in either case to the free ingress or egress of the blood on one or both sides of that organ.

You are aware that the left side of the heart is by far the most frequent seat of this cause of mechanical congestion; and disease of the orifices of this side is a much more efficient cause than hypertrophy and dilatation of its walls. For hypertrophy, dilatation, and combinations of these, produce mechanical congestion only *indirectly*, and *that* by disturbing the balance of the circulation which ought to exist, first, between both sides of the heart, and, secondly, between that of the heart and the general circulation. Whereas, the diseased conditions of the valves, and, consequently, of their orifices, give rise to mechanical congestion, not only *indirectly* but also *directly*, and often in both ways at the same time. Or, instead of saying that these diseased conditions give rise to mechanical congestion *indirectly* and *directly*, I might, perhaps, have better expressed my meaning by saying *actively* and *passively*. Thus, let us suppose an obstacle situated at the auriculo-ventricular orifice of the left side of the heart, which, by diminishing the capacity of that orifice, shall impede the passage of the blood into the ventricle. It is obvious that such an obstacle can only be *passive*, a mere obstruction or hindrance to the motion of the blood, by whatever means affected. On the other hand, let us suppose this orifice to be in a state of disease, by which it shall remain more or less open during the contraction of the ventricle,—it is equally obvious that we shall have an *active* obstacle, not to the passage of the blood into the ventricle, but to the passage of the blood from the lungs into the auricle, the amount of which obstacle will be estimated by the muscular power of the walls of the left side of the heart, and the size of the opening through which the blood is allowed to regurgitate. And, as I have already said, both these causes of mechanical congestion may exist, as is exemplified in what is called permanent patency of an orifice, as when the auriculo-ventricular orifice, or aortic orifice, remains permanently open in

consequence of retraction, or other morbid states of their respective valves.

It is, therefore, when the morbid state of the valves allows of regurgitation, and when this happens at the auriculo-ventricular orifice, especially on the left side of the heart, that this *active* mechanical cause of congestion becomes the most efficient morbid agent of this kind; that congestion is most extensive, most frequent in its occurrence, and most speedily fatal. Most, if not all, of you must be aware in what manner venous congestion arises in such morbid conditions of the heart as I have named. Whether the blood be impeded in its passage into, or out of, the heart, a certain quantity of it must accumulate first in the larger veins, and afterwards in the capillaries. If the obstacle exists on the left side of the heart, the lungs will obviously be the organs in which the blood will first accumulate. In these organs will the circulation be first embarrassed and impeded; in them will congestion be first produced; but here the mischief cannot stop.

Owing to this state of congestion of the lungs the right side of the heart meets with an obstacle to the transmission of its blood into these organs. It cannot, therefore, receive the full amount of the blood brought into its corresponding auricle from the general circulation. Retarded or impeded circulation must, therefore, take place on this, the right side of the heart, from the mechanical obstacle situated on the left side; and when this is produced on the right side, and in the larger veins which communicate with it, congestion of the venous system, in general, must follow, to a greater or less degree. The *degree* of the congestion, however, and the *frequency* of its occurrence, varies much in regard to the parts of the body or the organs in which it is observed.

I have already alluded to the morbid condition of the heart in which the congestion is greatest, viz., that which constitutes an *active* mechanical obstacle to the cardiac circulation. But whether this, or other morbid states of the heart be the cause, and if the left side is the side of the heart affected, the congestion is much more frequent and greater in degree in the lungs than in any other organ; and this you will readily perceive must also occur at a far earlier period than in more remote organs. If, on the contrary, the mechanical obstacle should exist on the right side of the heart, either at the orifice of the pulmonary artery, or the auriculo-ventricular orifice, congestion of the liver, from its almost direct communication with the right auricle, takes place at a much earlier period than in the lungs, and, consequently, also, at an earlier period in the chylopoietic viscera, from the congestive state of the liver, which then impedes the blood in its passage through it to the heart. It is, also, when an obstacle of this kind exists on the right side of the heart, that cerebral congestion from such a cause is most frequent and severe.

Congestion of the extremities, when produced by the morbid conditions of the heart which I have named, may be considered as next in frequency to that of the lungs; and the lower extremities are not only far more frequently the seat of this form of congestion, but they are, also, much more extensively affected, and at a much earlier period, than the upper extremities, a circumstance which may be explained by the greater distance, independently of the position, of these parts from the centre of the circulation.

Equally important, in a practical point of view, with those forms of congestion which I have named, is that which occurs in the mucous membranes, particularly in the gastro-intestinal and bronchial, as a consequence of disease of the heart. The degree, extent, and frequency of the mechanical congestion in these membranes are very various. In the bronchial mucous membrane, for the reasons and under the circumstances which I have already stated, it is most frequent in its occurrence, and often great in degree; and when this is the case we have always, at the same time, greater or less congestion of the liver and gastro-intestinal mucous membrane. In the case of our patient this triple complication was extremely marked.

The congestive bronchitis was very great, necessarily occupying both lungs, and consequently obstructing, to a considerable degree, the circulation through the organs. But besides this, there was also another obstructing cause, viz., great œdema of the right lung; and I may state here, *emphysema* of the greater portion of the left lung, constituting additional obstacles to the pulmonary circulation. In this state of the pulmonary circulation, therefore, together with the disease of the left side of the heart, the congestion of the liver, and especially of the gastro-intestinal mucous membrane, could not fail to be considerable.

In the mucous membrane of the stomach the congestion was general, not confined to portions, or limited to depending parts; the entire surface presented, in various degrees, the capillary and ramiform injection, of a venous character. Such were also the characters of the congestion in the mucous membrane of the intestines; and that of the gall-bladder was throughout of a uniform red colour; and it is probable that the same appearance would have been found in the ductus communis choledochus, ductus hepaticus and its branches, had they been examined.

Such appearances are extremely interesting, not only as regards their relations with the morbid mechanical cause on which they

depend, and the modifications of function to which they may give rise, but also in regard to their anatomico-pathological value in our post-mortem researches. To the inexperienced observer they might be confounded with those of inflammation, and consequently lead to vain and fruitless conjectures, and erroneous opinions regarding the nature of the case, its progress, termination, and method of treatment. It is in cases of this kind that we feel so strongly the value of a knowledge of morbid anatomy in discriminating between the various forms of congestion, and especially in the mucous membranes, in which they occur so frequently, and under so many deceptive forms.

As immediate consequences of mechanical congestion from disease of the heart, and as having occurred in the case of our patient, I may notice briefly œdema, or anasarca, and ascites. From the remarks which I have made on this form of congestion, the extent *to* which, and the situations *in* which it occurs, you will readily perceive what must be one of the most frequent of its consequences. Independently of the modifications of function to which it must give rise in the organs in which it occurs, the separation of the serous part of the blood, and its escape into the cellular tissues and serous cavities, must necessarily take place, to a greater or less extent. In disease of the heart, the serous effusion takes place or is, at least, observed by us, first of all in the inferior extremities, generally around the malleoli, where it is favoured by the greater abundance of cellular tissue in these parts, and afterwards gradually ascends to the legs, thighs, scrotum, and penis, in the male, labia pudendi in the female, and subsequently occupies the cavity of the peritoneum, although it may take place in this cavity about the same time that the thighs are affected. But the most important circumstances to be remembered are, its occurrence, perhaps without exception, *primarily* around the malleoli, a circumstance which distinguishes this form of œdema from that which depends on disease of the liver, in which case the effusion takes place first in the abdominal cavity, and afterwards in the legs and thighs, in consequence of the compression exercised on the abdominal circulation by the accumulated fluid. The occurrence of the œdema at the ankles, and its progress upwards, and the subsequent supervention of the ascites, were well exemplified in the case of our patient.

I have already alluded to the presence of œdema of the lungs in this case. It was extreme in the right lung, preventing its collapsing when the chest was opened after death, and flowed out from the cellular tissue in a stream, when laid open by the scalpel. In the left lung the œdema was very slight, and, indeed, so was the congestion, which in the right lung was very great. Such a difference between the morbid appearances in the two lungs was not only very striking but extremely interesting and important; and I may here repeat the remark I have already made in regard to the value of a knowledge of morbid anatomy. I do not hesitate to affirm that many medical men would have remained ignorant of the cause of such a difference, and would, no doubt, have left it unexplained, or come to a very erroneous conclusion regarding the nature of the morbid condition actually present in this case. I have already stated that there was emphysema of the greater part of this, the left, lung. The emphysema was most marked in the lower lobe, that is to say, the dilated air-cells, distended with air,—the essential morbid conditions of vesicular emphysema,—formed irregular lobulated projections; whereas in the rest of the lung the dilatation was uniform, and the distention or enlargement of the lung consequently so also. It must, therefore, be obvious to you that this state of the left lung must have had the effect of preventing, or greatly limiting, the occurrence of œdema or congestion. It is true that neither the œdema nor the congestion has its seat in the air-cells; but then the air had distended the air-cells uniformly throughout, and, consequently, compressed the intervesicular and interlobular cellular tissue, and the whole capillary system of this lung, in such a manner that effusion could not only not take place to any extent, but must have had its source nearly cut off.

The other organs which, in this case, were more or less œdematous, were the liver and kidneys. It was not, nor ever is, or can be, very conspicuous in these organs, from the comparatively small quantity of cellular tissue which they contain in an isolated state. Its presence could, however, be detected by means of pressure, and had given to them a considerable degree of firmness or hardness, which, had they presented a pale colour, might have, and has not unfrequently, led to the mistake of their being found in a scirrhous state.

As one of the consequences of disease of the heart, and as slightly present in our patient, I may notice the occurrence of hæmorrhage from the mucous membranes, and sometimes to a great extent from the bronchial mucous membrane and the gastro-intestinal mucous membrane. It is most frequent, however, in the former, and from this it occurred in our patient, in a small degree, the sputa being coloured by blood mixed with the bronchial secretion.

The last circumstance of general interest which I shall notice as having occurred in this case, was a slight yellow, or sallow, appearance of the countenance, which, together with a light colour of the fæces,

indicated a commencement of jaundice. Such an appearance is not uncommon in disease of the heart which has given rise to the complications which existed in this case, viz., the bronchial, hepatic, and gastro-intestinal congestion of the mucous membrane. It is a form of jaundice which, like the congestion itself, is dependent on a mechanical cause. The mechanical cause which produces it is situated in the liver itself, and in the duodenum. In the liver this cause is constituted by the general congestion of the organ, both in the hepatic and portal veins; in the intestines, by the congestion of the mucous membrane, which must more or less obstruct the passage of the bile through the orifice of the ductus communis choledochus. I have, besides, already stated that the mucous membrane of the gall-bladder was in a state of high congestion, and that if this congestion extended to the smaller hepatic ducts we would thereby have an additional obstructing cause to the passage of the bile, to its separation from the blood, or its retention in the secreting structure of the liver, and, consequently, the production of jaundice.

I shall now read to you the history, symptoms, and treatment of the case, from the case-book.

David Gibson, ætat 42, admitted 19th February, 1839. Sanguine temperament; married; moderately temperate habits; has travelled much and undergone great hardships; formerly accustomed to very violent exercise in walking, and training horses, and was very muscular. At the age of 14 he had chorea, caused by fright, which lasted eight months. At 20, had severe inflammation of the lungs, from which he perfectly recovered, and remained well, with the exception of great liability to colds, and slight attacks of rheumatism. Has lately been under Mr. Liston for stricture caused by gonorrhœa contracted four years ago. Some time back was an out-patient under Dr. Carswell for palpitation of the heart and shortness of breath; at which time there was a strong bellows-sound heard chiefly towards the apex of the heart.

Present attack.—Nine months ago, after a long journey in the cold and wet, combined with anxiety of mind, he began to feel generally indisposed; but the pain in the left side, the sense of constriction at the chest, and the shortness of breath, did not commence until five weeks ago, after some days of great exertion and fatigue of both body and mind. He became gradually worse, and this day week his ankles began to swell; the swelling ascended to the legs, thighs, and abdomen; the scrotum became distended, and the dyspnœa considerably increased.

Present symptoms.—Great prostration of strength; extreme anasarca of the legs and thighs; ascites; scrotum very much distended, but not tense; lower extremities cold, and feet livid; skin dry, no tendency to perspiration, and very cold; arms not swollen; considerable pain in legs and abdomen from the distention; fluctuation distinctly felt in abdomen; liver felt about half an inch below the costal cartilages, and floating, and appears (by percussion) to ascend to the sixth rib. There is considerable dyspnœa. The patient lies on his back, and is easiest in the semi-recumbent position. His countenance is suffused; eyes injected; lips and nose deep red; tongue large and dark; loss of sensibility of the gums; hands congested and very cold. Constant cough, with expectoration of a thick, dark, frothy matter, occasionally tinged with blood.

Auscultation.—Sonorous and mucous rattles both anteriorly and posteriorly. There is also too little respiratory murmur.

Heart.—Impulse too strong and too extended; rhythm very irregular, but no morbid sound.

The mind of the patient occasionally wanders; his spirits are much depressed. Tongue clean and moist, but of darker colour than natural; complete anorexia; vomiting after taking anything; great thirst; bowels confined; fæces light coloured; urine red and thick, and difficulty in voiding it; pulse 70, very irregular, intermitting, and weak; respiration 32.

Feb. 19. *Extract of elaterium*, half a grain;
Calomel, two grains;
Comp. extract of colocynth, four grains.
Make a pill, to be taken every third or fourth hour, until full evacuation is produced.
Creosote, two minims, before each pill.
Cupping between the shoulders to fifteen ounces.
Tincture of squills, twenty minims;
Nitrous spirit of æther, half a drachm;
Acetate of potash, one scruple;
Infusion of horse-radish, an ounce and a half.—Make a draught, to be taken three times a day.

20. Has passed a very bad night; no sleep. Cupping relieved him; breathing easier; cough and expectoration less. Bowels were opened after two doses of the pills, and have continued to act freely since.—Omit pill; continue the draught.

21. Worse to-day; more congestion and sallowness of the countenance; greater dyspnœa; occasional vomiting of a dark-coloured matter; urine very thick and dark; pulse weak and intermitting; surface very cold. Venesection to ten ounces. Bowels not sufficiently opened.—Repeat pill, as before.

22. He took six more doses of the pills, and had four large and watery motions. Countenance not so sallow; less distention of abdomen; pulse 88, more power in it, more regular and distinct. Complains of

pain in the umbilical region. Less congestion of the countenance; subcrepitant rattle on the left side of the chest; not so much orthopnœa. Relief from the bleeding. Slight morbid sound noticed at the apex of the heart and above. Died suddenly at 20 minutes to 4 o'clock.

Post-mortem, 22 hours after Death.

External appearances.—The arms and face exhibited considerable emaciation. The legs and thighs were tense and œdematous, and also the scrotum. Very great cadaveric congestion of the depending parts. The veins of the arms were full and more turgid than after the application of a bleeding-tape during life. The smallest incision of any part of the integuments, caused considerable hæmorrhage.

Chest.—Old, dense, cellular adhesions of the pleuræ on almost every part of the surface of both lungs. The lungs did not collapse on opening the chest. The *right* lung, of a deep venous colour, felt firm, and but slightly crepitant. When cut, large quantities of blood and serosity streamed from its substance on pressure. It weighed two pounds two ounces. The inferior lobe of the *left* lung was highly emphysematous, the dilated air-cells forming, here and there, but especially on the diaphragmatic surface of the lobe, considerable projections. The rest of the lung was effected in a less degree, the emphysema throughout consisting generally of simple uniform dilation of the air-cells. The congestion and œdema were comparatively slight; weight, one pound twelve ounces.

Trachea. — The mucous membrane presented a dark-purple, almost black colour, from congestion, and was thickly covered with a dark, muco-sanguineous fluid. The same appearances were met with in the bronchi.

Heart.—Very large, hypertrophied, and dilated; mitral valve, thickened and indurated and contracted into the form of a circular opening, about an inch in diameter.

Abdomen.—The mucous membrane of the *stomach* presented throughout the appearances of extreme venous congestion. It was of a deep, purplish-red colour, and presented various degrees of capilliform and ramiform injection, and was much thickened.

Liver.—The liver extended from the middle of the lowest part of the sixth rib to half an inch below the false ribs. It was hard, firm, dark-coloured, and much congested.

The *gall-bladder* was filled with thick yellow bile, and its mucous membrane in a state of extreme congestion.

Spleen, large and firm.

Pancreas, short, thick, and very hard.

Kidneys, congested, chiefly in the tubular portion, and extremely firm.

Bladder empty, parietes much thickened.

The whole of the mucous membrane of the intestines greatly congested.

Brain and membranes congested, and a great quantity of fluid effused into the latter.

I have sufficiently noticed the origin of the disease in this case, and which proved fatal after a period of upwards of 20 years; and had the patient been placed in circumstances which would have enabled him to have lived quietly and temperately, avoiding all the causes which accelerate the general circulation, and more especially which disturb or impede that of the lungs; and by attending to the means which favour the regular and free exercise of all the secretions and excretions, he might have enjoyed life for many more years with tolerable comfort. Although, from all the symptoms and signs present in this case, the prognosis was very unfavourable, I certainly did hope for recovery through the agency of those remedial measures which were so obviously indicated. The congestion, however, as was shown by the appearances found after death, persisted, not only in the gastro-intestinal mucous membranes, but also to a great extent and to a great degree in the bronchial. Partial relief to the more distressing symptom only, was obtained by the detraction of blood, and the operation of the elaterium, perhaps the two most powerful agents we can employ in such cases. Although the improvement was most observed on the 22nd, the day on which he died, he expired suddenly, having a few moments before been sitting up in bed and conversing with his wife.

No cause was found at the examination of the body for the sudden dissolution, which is by no means rare in disease of the heart, under the influence of any cause which disturbs the circulation, either mechanically, as in stooping or raising a weight, &c., or functionally, from the depressing effect of certain moral emotions. Whether this last cause may have been called into operation on a mind already depressed, I know not.

RHEUMATISM.—ABORTION.—PERITONITIS.

The next case is that of Ann Kimber, who died on the 28th of last month. This patient was admitted on the 19th with symptoms of rather an anomalous character, the principal of which, however, were referrible to rheumatism, and with which she had been affected two months before. The following is a general outline of her case.

Four days previous to her admission she felt feverish; had pain in the bowels, headach, and pains in the joints. When admitted she complained of pain in all the larger joints; less when warm; no swelling, heat, nor redness; she had very little power in either hand; also pain and tenderness on pressure in many parts of the abdomen, but chiefly in the right hypochondriac region, in the epigastrium, and over the kid-

neys. The pains were relieved by lying on her face. The skin was dry and harsh; there was some headach; tongue whitish; no appetite; considerable thirst; bowels confined; urine small in quantity, dark in colour, and depositing a sediment; respiration natural; heart normal; pulse 98, full and hard; suppressed menstruation for the last two months.

There being no redness or swelling of the affected joints, and the febrile symptoms not being urgent, antiphlogistic treatment was not considered necessary; the extract of colchicum was ordered, one grain, three times a day, with eight grains of Dover's powder, and two grains of calomel at night.

On the 21st, two days afterwards, she complained more of her head, and had been occasionally delirious during the night, in consequence of which the head was shaved, and eight ounces of blood taken from the nape of the neck. After the use of these means she passed the two succeeding nights better, but as there was still some headach, six leeches were ordered to be applied behind the ears on each side; and, as the rheumatic pains were still present, the colchicum was continued and increased from one to two grains.

The pain and tenderness first felt by the patient at her admission, and referred to several parts of the abdomen, but chiefly in the right hypochondrium, epigastrium, and region of the kidneys, were not made the subject of complaint during the four following days. However, when pressure was employed the patient did complain of some pain, and generally in different parts of the abdomen; but it was always, up to this period, of very doubtful character. I considered it to be either entirely of a rheumatic character, or partly of this nature, and increased by the occasional accumulation of flatus.

On the 25th, that is, on the fifth day of admission of the patient, the case presented an entirely new feature. There occurred considerable pain in the lower part of the abdomen, during the morning of that day, and in the evening there was a profuse discharge of blood and coagula from the vagina. On the following day the discharge continued, and also the pain in the region of the uterus; and on, examination per vaginam, the orifice of the uterus was found much dilated, and a coagulum hanging from it into the vagina. Some of the discharged clots were examined, and were found to consist of coagulated blood and fibrinous matter, having a somewhat membranous appearance, but presenting no evidence of the presence of an ovum. However, it was supposed that the patient was pregnant when admitted, and that the discharge was the consequence of abortion; and the supposition acquired confirmation from the circumstance that the menses had been suppressed for the last two months; that the patient had previously given birth to a child, although unmarried, and that she had been heard to allude to pregnancy at the time she was delirious.

With this opinion, as to the nature of the sanguineous discharge from the uterus, no means were employed to arrest it until the following day. The face and surface of the body were then very pale, the countenance anxious, and the pulse 100, and small. She was then ordered 3ij. of the sulphate of magnesia with M x. of dilute sulphuric acid, in 3x. of water, twice a day. This was on the 26th, the discharge of blood still continuing. On the 27th she complained of constant pain in the abdomen, greatly increased by the slightest pressure; there was more anxiety of countenance; greater pallor; pulse very weak, and 140; tympanitic state of the abdomen. Examined again per vaginam, the os uteri was still dilated, and filled with coagula; the uterus itself was not very tender.

With the view chiefly of relieving the flatulent distention of the abdomen and pain, a turpentine injection was administered, two minims of creosote to be taken immediately, and repeated if necessary, and half a grain of the muriate of morphia. When seen again in the evening, the severity of the pain continued unabated, and, although it had become probable that the pain was now dependent on peritonitis, no active antiphlogistic measures could be adopted. The patient, indeed, was already reduced to a state of great prostration; she was nearly exanguious. She was, therefore, ordered five grains of blue pill every four hours, and a large blister to be applied to the hypogastrium.

On the morning of the following day there was some relief from the pain; there was less flatulency; but the prostration was increasing; the pulse as high as 150, and extremely weak. She was now evidently sinking, and although wine was administered every two hours, she became suddenly worse, and died at half-past four in the evening.

The history of this case presents itself to our consideration under several important points of view, but chiefly as regards the occurrence of the peritonitis and the nature of the discharge from the uterus. The existence of the peritonitis was certainly not suspected till two days previous to the death of the patient: and it becomes an important inquiry how far the abdominal pains previously complained of were dependent upon inflammation of the peritoneum. It was on the *fourth* day previous to the death of the patient that these pains became considerable, and it was also on this day that the discharge from the uterus, or abortion, occurred; consequently we naturally attributed their aggravation to this circumstance;

I am not, however, disposed to believe that such was the case; that is to say, that the peritonitis was the consequence of the previously diseased state of the uterus. For the disease of the uterus was not of such a kind as to affect, by contiguity, the peritoneum; and if it had done so, we should have found, at the examination of the body, appearances which would have shown such a mode of extension. We should have found the peritonitis, if not confined to the peritoneum covering of the fundus of the uterus and pelvic viscera, at least more severe there than in other parts of the abdominal cavity, which was not the case. The inflammation occupied the greater part of the visceral peritoneum, but chiefly of the intestines and stomach. On the contrary, I am disposed to believe, for these reasons, that the peritonitis occurred as an idiopathic disease, and very probably after the admission of the patient, from exposure to cold, probably when, in a state of delirium, she got out of her bed during the night. With this view of the case we may explain, what is by no means a rare occurrence, the supervention of abortion, as a consequence of the peritonitis. I have already stated that it was only on the morning of the 24th, the day on which the discharge from the uterus took place, that the pain became severe in the lower part of the abdomen. Whether this was the *commencement* of the peritonitis, or an *aggravation* of it, we have no means of determining; but on the evening of that day a profuse sanguineous discharge, as I have described, took place, and continued, more or less, so as to occasion general pallor and great prostration up to the day of the patient's death. No other means of treatment could, under these circumstances, have been adopted to arrest the progress of the peritoneal inflammation, than those which were had recourse to, viz., counter-irritation, and the speedy introduction of mercury into the system.

With regard to the next question, viz., the nature of the contents of the uterus, I have already said that the examination of the discharge afforded no evidence of the existence of pregnancy, no trace of a fœtus, nor of the membranes of the ovum.

I have already mentioned the condition in which the os and cervix uteri were found before death; the suspicious language of the patient, and the fact of menstruation having been suppressed for a period of two months, and of the patient having already had an illegitimate child.

In order to throw additional light on this subject, let us see in what state the uterus and ovaries were found after death. The uterus was much increased in bulk, and the right ovary considerably enlarged; the cavity, but especially the neck of the uterus, was considerably dilated, and contained a quantity of dark, coagulated blood, a cylindrical portion of which projected through the os uteri into the vagina. The os uteri was also dilated sufficiently to admit the point of the middle finger, and the surface of this part and of the cervix was of a deep-red colour. A rather soft, shaggy, deep-red substance, about the size of the point of the finger, resembling the tissue of the placenta, was attached to the surface of the fundus of the uterus, near the opening of the right fallopian tube. The right ovary (the larger of the two, although the left was larger than natural), was of a somewhat ovate form, thicker at one extremity than the other, and presented, as well as the left, slight traces of peritoneal inflammation. When the right was cut into it was found to contain two serous cysts, one of which might have contained a small pea, the other a very small cherry. An *orange-yellow-coloured* substance, of an oval form, about three-eighths of an inch in diameter, was situated in the substance of the ovary, *immediately beneath* the peritoneal covering, and towards the *enlarged* extremity of the ovary. The central portion of this substance presented very faint traces only of a cavity, and no appearance of a cicatrix. In two points of the substance, but deep-seated, of the same ovary, were observed orange-red-coloured substances of a lesser size, and of an irregular shape. In the left ovary the latter appearances were also seen, but none of the orange-yellow-coloured substance found in the right ovary.

From these appearances observed in the uterus and ovaries, and from the previous facts of the case already stated, I have no hesitation in saying that this woman must have been in a state of pregnancy when admitted into the hospital. Independently of the suspicious circumstances of the patient's having already given birth to an illegitimate child, we have before us changes in the uterus and ovaries corresponding with the period of the supposed pregnancy, and some of which are almost universally admitted to be the result of impregnation alone. The increased size of the uterus, may, certainly, depend on a variety of causes; but in this case it was accompanied by the presence of a substance resembling the remains of the placenta, and attached to the fundus of the uterus, near the opening of the right fallopian tube, that corresponding with the right ovary, and through which the ovum must have passed. But the most important of these changes were those observed in this, the right, ovary. It was larger than the left; somewhat protuberant at one extremity, as happens after impregnation; and contained a peculiar substance situated where the impregnated ovum always must be, viz., beneath the peritoneal covering, before its escape. This substance I believe to be what is called the *corpus luteum*, although not so well marked an

example of it as I have seen on several occasions. It presented the colour, glandular-looking structure, and general form of this body. In order to have presented a perfect resemblance of the *corpus luteum* it should have had a central cavity, or, what is a still more marked character, a stellated cicatrix, which is the result of the union of the perforated membranes through which the ovum makes its escape. However, notwithstanding the absence or imperfect traces of these, I conceive that the other appearances were sufficient to identify the existence of a *corpus luteum* in this case, and, consequently, of conception.

For a luminous and accurate review of all the circumstances connected with this important question, I beg to refer you to the work of Dr. W. F. Montgomery, on the "Signs and Symptoms of Pregnancy, &c."

I shall only further observe, that although we have, in this case, evidence of conception, we have none that it was fruitful, or that a fœtus was developed. We had no traces of the membranes of an ovum, far less of a fœtus, in the substances discharged during life, although the first of these may not have been submitted to our examination. With regard to the orange-red coloured substances found in several points both of the right and left ovaries, it is of importance to be remembered that they are not an uncommon occurrence, and the consequence of circumscribed hæmorrhage. Here, as in hæmorrhage of the brain, for example, the serous part of the effused blood is absorbed, and, after a certain time, the red-colouring matter becomes more and more of an orange tint; the fibrine becomes consolidated and organised, and may, subsequently, undergo a variety of transformations. In the present case the effused blood was in the fibrinous state, and undergoing the change of colour mentioned.

LECTURE

ON THE

MORAL EDUCATION OF CHILDREN,

BY DR. FELIX VOISIN;

Delivered at the Marylebone Institution, on Thursday, May 2nd, 1839.

The power of education, in the development of the character of nations, has been acknowledged from the remotest antiquity. The works of Plutarch, Varro, Montaigne, Bacon, Locke, Condillac, and Helvetius, on this subject, are well known to most of us, and we are acquainted with the enlarged and liberal ideas of Mr. Simpson on national education.

From the prospectus which I have published you perceive that I tread out of the common road of my predecessors; but I have not wandered from the path of true science. The authors to whom I have alluded, great in their generation, as statesmen, as politicians, as moralists, as philosophers, have made their peculiar study the mass of human nature; that mass, mediocre in their faculties, as well as in their activity, capable of much, performing little, without decided propensities for evil, without marked location for good, susceptible of receiving with equal facility inspirations of every kind, and who, up to the present time, owing to this facility for receiving the most opposite and varied forms have not been, and cannot be, other than what they are made to be by the character of the ages in which they live,—the men, the institutions, by which they are governed.

The classes* of which I have now to treat do not come within the uniform methods of public education. It is not for man resem-

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* In the first class M. Voisin places those whose intellectual developments, being primitively stunted, may be described as the "poor in mind."

In the second class are comprised the *spoiled children*, or those who, born with the usual advantages of Nature, become vitiated by an early and ill-directed education,—children who, when grown up, form the bulk of those who are expelled from colleges, who constitute the pests of ordinary schools, who are sent to sea, or who are confined in houses of correction, at the instance of their nearest relations. If it be true, that society hitherto has not adequately discharged its duty to this unfortunate class of persons, it is no less true that this has mainly depended upon the unadvanced state of science on a point of such paramount interest.

The third class comprises those to whom Nature has been lavish of her gifts. Precocious alike in the power and extent of their talents, they may truly be said to be *mediocre* in nothing; and who become great men or great criminals according to the circumstances under the influence of which they live. Who can estimate the irreparable losses which society is constantly sustaining on this score? How small the number of teachers who divine those intellectual superiorities; or who, when they have to deal with them, know how to deviate from their uniform methods of instruction!

In the fourth class he places children born of insane parents, and having an inherent tendency to the same calamity,—children who, without a special treatment, are liable, as experience has shown, even although no indication of insanity may be manifested for a time, to be struck, without any apparent external cause, with the malady of their progenitors, at or near the age at which the latter became insane.

bling man, for the great bulk of society, that I present myself as the advocate, the teacher, the defender; it is for man in his exception to the general laws of Nature. Whether Nature may have been for this individual lavish in its bounty, or sparing in its gifts; whether he has been vitiated in his primitive education; whether, in coming into the world, he has brought with him the seeds of mental or nervous disease transmitted by his progenitors, in either of these cases he presents peculiarities of character and intelligence, native or acquired; he may be said to have his own type, and that if we do not compromise with our general principles, and, to a certain extent harmonise with his own character, instead of treating him as an ordinary being, we shall struggle in vain, as our predecessors have done, against the idiosyncrasy of his nature, or the irregularities of his organisation.

Let us now come to facts. In my general observations upon society, I have found that a great number of children are, in a state of nature, poor in mind, below the ordinary standard of creation. This is my first class.

In my hospital in Paris a hundred children of this kind are confided to my direction. I do not pretend that success is to be obtained in the worst cases of this class. It does not belong to art to change entirely, although it may modify, the operations of Nature. These rough and imperfect productions of humanity afford, however, a vast scope for observation. The importance of my system, in the estimation of men of benevolent feeling, consists in the knowledge of the fact, that from the lowest idiot in the scale of human intelligence, up to the ordinary being, there is an immense number of intermediary degrees. Idiotcy is rarely complete. The distinctive signs of humanity are not utterly destroyed in the lowest individual: a field still remains for culture by education. Even in the degradation of his misery he bears upon him the impress of his Creator.

As we cannot elevate to our own standard individuals of this class, let us descend a little from our own elevation, in order that they may comprehend us in the task which we have undertaken. Let us knock repeatedly at the gate of their intelligence; let us not abandon them to their imperfection. By patience, by perseverance, and a due appreciation of the extent of their powers, we shall infallibly obtain, always, of course, within the limits of their capacity, a result commensurate with the task, and gratifying to our benevolence.

Before, however, I come to the children of my second class, I must communicate an important observation made upon those of whom I have spoken. On inquiry into the causes which have checked, in the womb of the parent, the perfect development of these beings, and into the causes of their mutilation (and here let us admire the hand of Providence), I have acquired the conviction that we are not justified in accusing Nature; but, on the contrary, that we do but undergo the consequences of the infraction of her immutable laws, the greater portion of these unhappy creatures having been conceived in a state of riot and debauchery.

Continuing my researches, I met with children who had been vitiated from their most tender infancy,—to whom external circumstances had been unfavourable, and who had been spoiled by ill-judged severity, or mistaken indulgence. These children did not present any vice of constitution; they partook of the ordinary organisation; habit had formed in them a second nature; evil had engendered evil. If these unfortunate beings had been struck with physical deformity, they would have found in our hospitals and institutions the remedy for their calamity; but for them no moral edifice has yet been raised; their end, their asylum has hitherto been Bethlem, Newgate, or our penal colony. What has been done with these children? What is still done with them? No attempt is made to modify; the method adopted for the mass has no effect upon them; they are expelled from our colleges and schools; they are left under the powerful grasp of their bad dispositions; and, having worn out the patience of their teachers, and exhausted the kindness of their friends, they either fall under the correction of the laws which they have violated, or, to prevent this misfortune, are sent to sea, and, by a milder mode of expatriation, are thus lost to society. These are the children that I would save,—these are the children that I would adopt.

I ask whether such persons are to be held responsible to society for the evil direction given by society to their infancy? Ought they to undergo the penalties which have been incurred for them by those to whom they had a right to look for moral cultivation? I have the more hope of restoring them to themselves,—to the excellence of their nature and the superiority of her attributes, as there are no obstacles to their treatment in original vice of conformation; as they are born like the bulk of mankind; that is to say, with the ordinary conditions of human nature. As they harmonise with us in so many respects, we are the better able to give a beneficial expansion to their faculties.

Persons of this class are the disciples of all that surrounds them; the experience of every day proves the truth of this observation—with them evil has produced evil. Let us see whether good will not produce good; let us not be discouraged; let us change the external circumstances under the influence of which they live, placing only good examples before their eyes, cultivat-

ing their generous sentiments, developing their intelligence; and then let us see whether the victory will be for the man or for the animal.

I now come to the third class; this comprises all those who, born with strong faculties, can be mediocre in nothing, and who, from the great man, or the great scoundrel, are apt to the greatest crimes as to the greatest virtues, according to the circumstances, more or less favourable, by which they are influenced. To be a Demetrius, a Turpin, or a Cataline, a high degree of power is requisite; the energy is always the same; in one case it turns to the advantage of humanity; in the other it acts against itself and against society. A common education will not do for a child of such superiority; a child richly endowed by Nature does not receive its impressions from without, and does not act upon these impressions like a vulgar mind. With such an organisation we must abandon the ordinary modes of comparison.

If a teacher does not understand the innate eccentricity of a character so superior as this,—if, master as he is of his person, and of all the extrinsic modes of modification, he cannot attain to the intelligence of his pupil; if he cannot direct, restrain, calm, respect, this too expansive and too ardent genius,—if he does not know how to govern and moderate the activity of this powerful intellect, what a loss does society undergo.

I do not exaggerate this calamity. Read with attention both ancient and modern history, and say whether, with a few superior minds, more or less, the entire character of that history would not be changed. How little has the intellectual force of the mass been developed? How little has it belonged to itself, turning round and worshipping the Cæsars, the Charlemagnes, the Elizabeths, the Cromwells, the Napoleons? See how the masses have revolved in their orbits round these human gods.

Let us now enter into some considerations as to the peculiar character of my fourth class. It is composed of all those who are born of insane parents, and who, by hereditary transmission, are predisposed to mental or nervous affections. In the course of twenty years observation, in private practice, and in the hospitals, I have ascertained that for every hundred cases of insanity, seventy are the result of the same infirmity in their progenitors. This observation does but confirm what has been stated by my predecessors, and experience has shown that the insanity of the descendant almost generally breaks forth, and frequently with the same character, even in the midst of human felicity, without any of those external causes which, in other cases, determine its manifestation, at the same age in which it was manifested in the parent. I have made upon these unfortunate beings another observation which appears to me to be worthy of fixing public attention. It is with a great number of children born of insane parents as with those disposed by nature to be fine and powerful in their species. Their nervous system is highly impressionable; their propensities are energetic, their feelings warm, their intelligence extensive, and at an early age they have a manner peculiar to themselves, and which appears to promise a bright future. This very superiority may, by the conduct of their friends, serve to increase the predisposition to insanity. Their friends, indeed, far from taking alarm at these peculiarities, found upon them the most brilliant hopes. Instead of veiling them, if I may use the expression, from the head to the feet, they take every opportunity of displaying their precocity for the satisfaction of their own vanity, and excite them at every opportunity, and thus, by mistaken affection and ignorance, precipitate the moment of explosion.

The conduct proper to be observed for children of this class is easy. The special study of the character of each, and the private information received as to the authors of their birth, will point out to us the nature of the curative process. As a first rule I have always attempted to create for them a sort of existence calculated upon the specialities of their instruction and their moral and intellectual being; I seek to establish harmony between their different cerebral faculties. I put into repose those which have an excess of energy, and excite and develop others which are inactive. In all cases I find in the moral and physical treatment to which I subject them; in the sometimes exclusive habits which I cause them to contract; in the prolonged calm of the brain; in the games and the fatigue of gymnastic exercise, numerous resources for combatting with advantage their innate dispositions, for modifying their organisation, changing their constitution, upon the system of Hippocrates, and thus snatch them from the kind of fatality which hangs over them. I apply to them rigorously the maxim of Montaigne, —I keep their feet warm and their heads cool,—and far from the common custom of making them live as spiritual beings, I endeavour, on the contrary, for a certain time, to keep them in a vegetative state.

Such is the establishment that I propose for the poorer orders of society. If my ideas be based upon incontestable facts,—if the children of whom I have spoken to you be not imaginary beings,—if I am in the path of truth and benevolence,—I shall find an echo in generous Britain. An institution of this nature is wanting to Europe, to science, to humanity. May you set the example to the universe. In this hypothesis I shall have only one favour to ask of you, that of accepting my gratuitous devotion and care in favour of these poor children of my pre-

dilection, and upon the frontispiece of the establishment I will engrave this consoling sentence,—There is always hope.

CONTRIBUTIONS TO PATHOLOGY.

By CHARLES F. FAVELL, *M.D.*,

Physician to the Sheffield General Dispensary and Infirmary, &c.

HYDROPHOBIA,—POST-MORTEM APPEARANCES.

ABOUT two years ago the following two cases of hydrophobia occurred in the practice of my friend Mr. Gregory, surgeon, of this town, by whose kindness and courtesy I had the privilege of witnessing the symptoms during life, as well as the morbid appearances after death. It is not my intention to occupy the pages of this Journal with an account of the symptoms which were observed during the progress of these cases, but rather to confine myself to the enumeration of the post-mortem appearances. I only remark that the symptoms were the same in each case; they did not differ from those which are commonly enumerated as characteristic of the disease—those which it had previously been my painful duty to witness.

CASE 1. — Wilkinson, a fine, stout man, in robust health, 37 years of age, a grinder by trade, and addicted to habits of intemperance, was seized with symptoms of hydrophobia soon after getting out of bed on the morning of the 13th of April, 1837. He had been bitten by his own dog (which, at the time, was not supposed to be rabid), eight weeks previously. He died on the 15th, at 11, A.M., and on the 17th, at 10, A.M., the body was minutely examined by Mr. Gregory, in the presence of several medical friends. A female attendant stated that *nine hours after death the upper part of the body was so warm as almost to induce her to believe that the man was not dead; the lower extremities were, at the same time, quite cold.* As the woman had not a thermometer, she judged of the relative temperature by her hand.

External appearance.—The body well developed; face pale; considerable lividity about the lips, anterior part of the neck, clavicles, and posterior parts of the body.

Head.—Scalp and calvarium natural; dura mater slightly congested; effusion of bright florid blood upon the arachnoid membrane, where it covers the posterior portion of the left hemisphere; beneath the arachnoid considerable effusion of colourless fluid, the membrane itself slightly opaque; the vessels of the brain much engorged, particularly at the posterior part; the substance of the cerebrum darker than natural in colour, and exhibited numerous bloody points when incised; no abnormal quantity of fluid in the ventricles; the pons varolii was of a darker colour than natural, and the substance of the cerebellum was considerably softer than the cerebrum.

When the body was turned over in order that the spinal chord might be examined, the head being suffered to hang down, a large quantity of very dark-coloured fluid blood escaped.

The Spinal Canal was opened as far as the fifth dorsal vertebra. The external covering of the chord was injected with blood, more especially in the cervical portion; on slitting open the dura mater the pia mater was found extremely injected, and, for a short space, commencing at the third dorsal vertebra, infiltrated with air; the grey substance of the chord was of a darker colour than natural, and the blood-vessels accompanying the nerves were much congested; when the chord was removed the membrane beneath it was found to be extremely congested, especially in the cervical portion.

Thorax.—The muscles on the anterior part of the body well developed, and of a dark-red colour; the vessels of the lungs much congested with dark-coloured blood; in the superior lobe of each lung there was a deposition of tubercular matter; the bronchial tubes strongly injected; the heart natural in size, covered anteriorly with fat; the right ventricle contained a considerable quantity of dark-coloured blood, mixed with air; in the left ventricle there was a deposition of fibrine.

The Pharnyx was livid, and the small vessels were considerably injected; the œsophagus natural; no morbid appearance in the glottis, epiglottis, or larynx.

Abdomen.—The right kidney was small, lobulated, and strongly injected; the left kidney larger than the right, but not nearly so much congested; incipient degeneration of the liver; spleen natural; stomach and intestines healthy.

CASE 2. — Ibbotson, ætat 32, a grinder, of intemperate habits, a friend and companion of the subject of the foregoing case, was bitten by the same dog, and on the same morning, as Wilkinson. At the time of the bite he was in good health. For a few days before the 14th of April he complained of being unwell, pain in the head, vertigo and listlessness. On the 14th, having heard that his friend had been taken ill the day before, he went to see him. When he arrived at home again he expressed himself as feeling very poorly, and then, for the first time, experienced considerable difficulty of deglutition. Symptoms of hydrophobia soon became evident, they rapidly increased, and he died on the morning of the 16th. No unnatural heat was observed in the body a few hours after death. The post-mortem examination took place on the morning of

the 16th, and was very ably conducted by Mr. Gregory. There was nothing remarkable in the external appearance; slight lividity about the shoulders, clavicles, and posterior parts of the body.

Head.—Decided congestion of the vessels of the dura mater; effusion of blood beneath the arachnoid membrane covering the anterior and posterior lobes of both hemispheres; no effusion of serum; the membrane itself opaque. The vessels of the brain congested; the brain itself firm, exhibiting numerous bloody points when incised; effusion of serum on the surface of the cerebellum, and at the base of the skull; the cerebellum was not softer than the cerebrum.

When the body was turned over after the brain had been removed, a large quantity of dark-coloured fluid blood escaped.

Spinal Chord.—The dura mater covering the chord was very much injected, but much more so in the dorsal than in the cervical portion. The vessels of the pia mater, as well as those following the course of the nerves, injected; slight infiltration of air beneath the pia mater covering the upper part of the dorsal portion of the chord; the chord itself slightly injected; no effusion beneath it.

Chest.—Lungs considerably congested; adhesion between the pleuræ on the left side; small, hardened, granular bodies in the superior lobe of each lung. Heart of moderate size; the left ventricle contained a small quantity of dark-coloured blood, but no air; the right ventricle contained about the same quantity of similar coloured fluid, mixed with air.

Abdomen.—Incipient degeneration of the liver, but no congestion; no congestion of the spleen; kidneys healthy; the stomach not injected, but the mucous membrane of a greenish colour.

The epiglottis and larynx intensely congested, the redness proceeding into the bronchial tubes. In the upper portion of the œsophagus there was an ulcer, but apparently not of recent formation; the rest of the œsophagus healthy.

Remarks.—It is somewhat remarkable that the subjects of the foregoing cases should have been seized with symptoms of hydrophobia so nearly at the same time. It is true that they were bitten by the same dog, and within a few minutes of each other, but yet we could not *a priori* suppose that the disease would be isochronous in each. There are many instances on record where different persons, bitten by the same dog, and at the same time, have subsequently been affected with this appalling malady, but I do not at present recollect any in which the disease has appeared so simultaneously.

An interesting question will naturally suggest itself to the minds of those who read this communication, viz., What effect had Ibbotson's visit to his friend in hastening the development of the hydrophobic symptoms? Perhaps we cannot draw a legitimate inference; but it is worthy of observation that although he had been labouring under *malaise* for two or three days, he had none of the peculiar symptoms of hydrophobia before his visit; and, further, that those symptoms manifested themselves almost immediately afterwards; in fact, before he reached home. My own opinion, however, is, that the apparently slight indisposition under which he had been labouring *was premonitory of the attack*, and that in all probability the more formidable symptoms would very speedily have appeared, even if he had not visited his friend. But I am too well acquainted with the reciprocating influence of mind and body to assert that the visit did not *accelerate* the full development of the disease. A third person who was bitten at the same time as Wilkinson and Ibbotson, who saw one or both of them during the progress of the complaint, and who attended the funeral of each, has altogether escaped the fearful sufferings of his companions.

The accounts of the morbid appearances observed in hydrophobic patients after death, are very various; so much so, "that no distinctive pathological character has, as yet, been satisfactorily determined." This circumstance gives additional interest to the cases I have just detailed, in which there was a remarkable identity in the *post-mortem* appearances; and I think it ought, also, to have the effect of inducing medical practitioners carefully to note and faithfully to record the result of their own dissections in these painfully interesting cases.

In both the present instances there were similar morbid appearances in the head, the chest, and the spinal chord. In the head the membranes were congested; the brain of natural consistence, but exhibiting, when incised, numerous bloody points, effusion of serum, and also effusion of blood under the arachnoid. *In the spinal chord* the membranes were "extremely injected," and the vessels of the chord much congested, and *there was also infiltration of air beneath the pia mater. In the thorax* the lungs were considerably congested, and the right ventricle of *the heart contained, in each case, a quantity of dark-coloured blood mixed with air.* In only one of the cases, Ibbotson's, was there any preternatural redness of the glottis, epiglottis, or larynx.

The quantity of air mixed with the blood in the right ventricle of the heart, and infiltrated beneath the pia mater of the chord, in each case, deserves special attention. Did air exist in very unusual quantity in the circulating fluid during life? Or was the gaseous matter separated from the blood after death? On these questions I shall enter into no speculation at present. If the lattre

were the case the morbid condition of the blood may possibly be considered as the second link in the chain of causation,—if the former, we must look more carefully for the origin of the gaseous matter. It is certainly remarkable that *the air was only observed beneath the pia mater covering the upper part of the dorsal portion of the spinal chord, and in the right ventricle of the heart.*

I am too fully impressed with a sense of the care which is requisite for drawing *practical inferences* from very limited observations, to fall into the error of making such deductions myself. The great hinderance to the advancement of medical science has been, and is, the publication of crude theories, and the bolstering up of cases to support them. If the medical officers of our public hospitals would publish a faithful record of their most interesting cases, *and allow the facts to speak for themselves*, I feel satisfied that more real knowledge would be gained by the profession at large, than at present results from the great majority of the learned and elaborate treatises which are almost daily issuing from the press. It is with the hope that, in my humble measure, I may contribute towards so desirable an end, I now commence my series of contributions.

Sheffield, May 3, 1839.

THE WOURALI POISON.

To the Editor of THE LANCET.

SIR:—Since the publication of the well-conducted and valuable experiments upon decapitated and living animals, elucidatory of the phenomena of respiration, performed by Sir Benjamin Brodie and Mr. Broughton, I have not been so much interested upon perusal of any others as those performed at Nottingham, with the Wourali poison.

I transcribe, from a recent number of the "Nottingham Review," three of these experiments, which, I am persuaded, will be found interesting to your numerous readers.

EXPERIMENTS WITH THE WOURALI POISON.

Performed by Mr. WATERTON, *at the Medical School, Nottingham.*

For the *first experiment* a large dog was chosen. To prove the certainty of the action of the poison to destroy life, an incision was made in the side of the dog, and a spear-head, covered with the poison, inserted into the wound; this was left in the side, in order that the poison might be absorbed into the system. In about a quarter of an hour the circulatory system was much increased, the pulse rising to 130 in the minute, and the action of the heart being irregular; the creature was unable to stand at 36 minutes after the insertion of the poison; convulsive twitchings of the whole body were evident, and the pulse continued irregular up to the time of its death; at 52 minutes it ceased to breathe, but the heart continued its action; in a few minutes after the chest was opened, and the heart irritated with the end of a scalpel, but in a short time the irritability ceased.

The *second experiment* was then entered upon, and an ass was chosen for it. It was intended, in this experiment, to use *artificial respiration* during the whole of the time that the animal continued under the influence of the poison, so that when its power had ceased, the creature would resume its natural respiration, and the artificial means be discontinued, thus enabling it to survive the powerful effect of this most deadly poison. The arrow-head, covered with the poison, was inserted into the lower part of the neck of the ass, a few minutes after nine; in about a quarter of an hour the heart began to beat irregularly; the respirations were about 15 in the minute; the pulse was accelerated, and the pupils of the eyes were dilated; in half an hour the breathing became difficult and irregular, and the pulse had risen to 104; at this moment the creature fell, as if dead, perfectly motionless, and the pulse could not be felt. An opening was immediately made into the wind-pipe, and the apparatus, which had been prepared for the purpose of carrying on artificial respiration, was applied, and put in action; this consisted of a tube, which was introduced into the opening of the windpipe, and a pair of bellows, which were attached to this tube; the lungs were then inflated, and afterwards emptied by pressure on the body; this action being kept on regularly and steadily, supplied the place of the natural respiration; this process was persevered in for *seven hours and a-half*, at which time the animal commenced breathing by its own efforts. During this time but little change occurred in the animal; it lay motionless, and apparently lifeless; its extremities were to a certain extent cold, the respiration had ceased, and the heart beat very feebly. From the time of animation returning the animal has been gradually improving, and has eaten plentifully of hay, &c., but a degree of paralysis of the limbs exists, from the application of *strychnine*, which was used with the view of restoring it earlier from its state of temporary death, by inducing a degree of spasm. In the course of the night the tube was removed from the windpipe, and a quantity of mucus escaped from the wound, followed by a little coagulated blood; the wound was then closed, and respiration went on by the natural openings.

The *third experiment* was commenced on Tuesday morning. The ass chosen was younger and in better condition than the previous one. The poison was inserted in a similar manner, but only a fourth part of the

quantity was used; the ass for some time suffered but little, and continued to eat hay. The effect was evident in 31 minutes (four minutes more than in the previous experiment), when the animal fell, senseless and motionless; artificial respiration was carried on for two hours, at which time natural respiration commenced; the ass was so far recovered at the end of six hours as to get up and stand by itself. This experiment may then be looked upon as more satisfactory than the previous one, and it shows how very much sooner the animal may be restored after having a smaller dose of the poison administered, and that its effect is much more transitory.

The advantage derived from these experiments on the lower animals, is the hope that this agent may be applied, and prove to be successful, in the cure of hydrophobia, a malady which, up to the present time, has defied all treatment; if it is brought to bear, its action appears to be to suspend animation, and so far exhaust the powers of the body as to turn out, or destroy the hydrophobic poison.

During the afternoon of Monday, to prove the virulence of the Wourali poison to a medical gentleman who had been prevented from witnessing the experiments, Mr. Waterton inserted a dart near the shoulder of a small spaniel; in about seven minutes and a half the poison began to take effect, and in nine minutes pulsation ceased.

Between the hours of four and five on Tuesday afternoon the second ass was so much recovered as to be able to carry Mr. Waterton round the room.

Since my discovery of the gases circulating in our arterial and venal blood, we have been enabled to explain the phenomena of the action of the Wourali poison in such cases.

We find that, in the first experiment, artificial respiration was not employed, and that the deleterious effects of the poison were allowed to take their course upon the sensorium commune; hence the absorption of atmospherical air into the extreme branches of the pulmonary veins was prevented.

In the second experiment, the animal's life was saved by artificial respiration, and thus a certain portion of atmospherical air was absorbed into the systemic system.

The third corroborates the previous experiments, and requires no comment.

From the above-named discovery, made in the year 1834, we can also readily understand the manner in which the fœtus in utero receives a suitable quantity of oxygen from the parent. Time presses and I must conclude. I remain, Sir, your obedient servant,

W. Reid Clanny.

Sunderland, April 25, 1839.

ON THE

FORMATION OF MUCUS AND PUS,

AND THEIR RELATION TO THE SKIN.

BY DR. HENLE.

Ueber Schleim-und Eiterbildung und ihr Verhältniss zur Oberhaut. Von Dr. Henle.

(*Hufeland's Journal*, Bd. lxxxvi. St. 5.)

This paper* contains a series of interesting microscopical observations, instituted with the view of distinguishing mucous from purulent secretions. In this the author has failed, but has, nevertheless, contributed some valuable facts to medical science, by enabling us to discriminate several varieties of mucus, differing in their mode of origin, *semeiotic* importance, and pathological nature. The first few pages are occupied with a description of the structural affinities of the epithelium and skin.

The cutis (epidermis and epithelium), may be described, in regard to its most general and essential characters, as a simple or complicated layer of cells, coating all the free surfaces of the body, the internal areas of its canals and tubes, and the walls of its cavities. This structure pervades the outward integument, and all the mucous membranes, whence it is continued into the excretory ducts and glandular tubules; also the smooth and polished lining of the serous membranes, the inner surface of the heart, that of the vessels to their minutest ramifications. The cells uniformly contain a roundish or oval nucleus, more or less flattened, and distinguished by one or two small pointed granules. This nucleus, with its granules, never varies; the different kinds of epithelium depend on differences in the development of the transparent cells only. The author has discriminated three forms:

1. That in which the cell represents, generally speaking, the contour of the nucleus, being either in close contact with it, or forming round it a capacious vesicle. This form the author has named the *pavementalt* epithelium (*pflastcrepithelium*). It constitutes the covering of the cutis, of most of the serous membranes, of the vessels and glandular canals, with exception of the testis. It is met with upon the mucous membranes, in the vicinity of their external apertures, along the alimentary tube, as far as the pylorus; upon the vagina, the inferior half of the neck of the uterus, the female urethra; lastly, the ball of the eye, including the lucid cornea.

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* We wish the author had paid more attention to style, for his sentences are often so complicated as almost completely to obscure their meaning.

† From the slight similarity existing between the arrangement of its parts, and the stones laid in a street.

2. That in which the cells are of a conical form, with the apex directed towards the mucous membrane, and the base towards the free surface. These, from their close juxta-position, resemble fibres; the nucleus forms a prominence about the middle of their length; this he has named the *cylinder epithelium* (*cylinderepithelium.*) It occurs in the alimentary canal, beginning at the stomach, in the excretory ducts of most of the glandular structures, in the gall-bladder; lastly, in the whole extent of the male genito-urinary apparatus, except the vesiculæ seminales and cells of the prostate.

3. The *ciliated epithelium* (*flimmerepithelium*), consists of precisely similar cylindric or conical bodies, peculiarised by ciliæ upon the free and broader end. It has been discovered in the respiratory organs, the internal organs of generation in the female, commencing at the superior half of the cervix uteri; farther, in the ventricles of the brain, and, as the author has recently ascertained, upon the inner surface of the eyelids, lachrymal sac, and lachrymal duct.

We may reckon the epithelium of the bladder, in which the cells are in a state of tension, and disposed vertically to the mucous membrane, but irregular in shape, as intermediate between the cylindric and *pavemental* epithelium.

The cells of the epithelium occur sometimes in simple, sometimes in complex strata, more or less firm. We find the cylindric and ciliary epithelium universally in simple layers; and the *pavemental* epithelium similarly disposed upon the principal serous membranes, the lining membrane of the vessels, and the delicate mucous tunic of the cavity of the tympanum. Upon the external skin and the remaining mucous membranes, the cells lie stratified one upon another, emanating from the cutis and mucous surface, and undergoing changes in form, according as they are pressed outwardly. In the lowest layer, or that immediately contiguous to the skin, the nucleus is of a yellowish-red hue, bearing a faint resemblance to the globules of the blood. The cell is here so intimately united to the nucleus as to seem wanting, and is sometimes in reality. More externally the nucleus is more granular, paler, also bigger; the cell, however, is disproportionate in its growth. Still more externally both nucleus and cell get progressively flatter, so that they appear as mere fine scales. The form of the cells, at first roundish, becomes, by the pressure of one cell upon another, polygonal, and, in the end, irregularly lamellar. In the outermost layers of the epidermis it is scarcely possible to recognise the nucleus; and the laminæ, or scales, are so blended, that unless we were aware of the gradual transition, and had recourse to artificial aid, the mode of their origin could never be inferred. At the same they dry up into a kind of cortical substance, like the exterior, woody, and dried cells of plants.

In consequence of the determinate form and constant difference of the epithelium cells, the author thinks we are no longer entitled to regard the skin, in a physiological point of view, as an inorganic product of secretion, since the cells are developed and changed in a peculiar and independent manner. They not only enlarge, a circumstance which might be explained by physical absorption, but the interior nucleus gradually increases in bulk, thereby becoming paler in colour, afterwards flattened, and ultimately disappearing in the outermost cells of the epidermis. The chemical nature of the cells is, moreover, altered during this process of development, for the deeper layers dissolve in acetic acid, while the superficial, both of the epidermis and *plaster-epithelium*, remain unaffected by that agent. The peculiar dynamic action of the cells is shown by their sometimes becoming filled with pigment, as in the *rete Malpighii* of the negro, and stelliform in the pia mater; and by their sometimes taking up adipose matter, as the epithelium cells of the skin in *acne punctata*, and the epithelium cells of the liver. The circumstance of the ciliæ of the ciliated epithelium being set in motion when the conoid cells swim round singly, is an additional proof of the organised nature of the external skin.

The skin bears a twofold relation to the secretions of the membranes and the glands. It has been experimentally proved that if it be soaked in any fluid, it allows that to permeate equally from within outwards as from without inwards. Here it is in a passive condition. The author conjectures it has also an active function, since its cells evidently contain drops of oil, in organs the secretion of which contains a notable admixture of adipose matter. Subsequent observation has tended to confirm his conjecture. In the interior of the liver not merely the internal lining of the most delicate biliary tubes, but the entire parenchyma, with the exception of the blood-vessels, consist of the cells above described,* of which the nucleus, constant in size, has a diameter of from 0.0030 to 0.0033 of a line, and is perfectly round, though somewhat compressed. The cells, in consequence of the pressure they exercise upon each other, are polygonal, mostly tetragonal or pentagonal; their mean diameter is 0.007 of a line.

In proportion as the skin is reproduced anew from below, the superficial layers get detached, peeling off, in the healthy condition, as thin branny scales. When a portion of the sound integument has been bound up

* The acini of the glands, without excretory ducts, likewise, are composed of very regular *nucliferous* cells, analogous to those of the epithelium of the serous membranes.

for some weeks, the scales thus separated are countless. Pressure increases the formation of new epidermic scales upon the cuticular surface. Callosities, as corns, make their appearance when the pressure is protracted and sufficiently powerful to counteract the projection of the thickened epidermis upon the surface, which then becomes forced into the substance of the skin. A similar desquamation is gradually and constantly going on, under ordinary circumstances, upon certain portions of the mucous membrane. The ejected particles, however, do not present the aspect of dry scales, like those of the epidermis, but of tough membrane, always moist, forming the so-called mucous coat of the several mucous membranes, in as far as they are accessible from without.

The external surface of the eyeball, the meatus narium, the mouth and fauces, the gullet and vagina, uniformly possess this mucous casing, which may be readily scraped or rinsed away, and which ought to be frequently done as a measure of cleanliness. Nature, indeed, has furnished certain means for getting rid of this excrementitious product. Thus, the mucous or epithelium envelope of the eyeball (for these are synonymous terms) is continually being conducted to the nose by the lachrymal secretion, while the mucus of the digestive apparatus passes off with the chyme, fæces, &c. From time to time the limpid secretion of the muciparous glands, which Burdach denominates *mucous fluid* (*schleimsaft*), is, like the cutaneous perspiration, augmented, whereby the detached shreds of epithelium are washed away. We have accordingly a primary species of mucus, consisting of the normal but detached superior layer of the epithelium, of which the microscopic elements are clearly defined, inasmuch as the cells are very large and flat, in reference to the nuclei, though little connected with each other. To detect these it is simply necessary to draw the finger-nail gently along the tongue, or inner surface of the cheeks, and to place what is rubbed off, mixed with water, under the microscope. They are to be met with in all excretions which have passed over mucous surfaces provided with a firm epithelium, in the tears, the saliva, and so forth. This progressive desquamation occurs only where the epithelium exists in more or less considerable layers. Many kinds of epithelium are not susceptible of this process of regeneration, as, for example, that of serous sacs, because they cannot be thrown off externally. The ciliated and cylindric epithelium only separate under special conditions, either pathological, of which mention will be made farther on, or at particular periods during health. Thus is coated, for instance, the whole tract of the intestinal canal in the infant, for the first week after birth, the villous shreds being subsequently seen in the evacuated fæces; the stomach is similarly circumstanced during the process of digestion; as, also, are the female organs of generation, after delivery (by the lochia), and during menstruation. At the time of the catamenia the vagina always participates in the exuviation process (*häutungsprozess*), and the mucus in the white discharge which precedes and follows the sanguineous, contains the detached epithelium fragments from the neck of the uterus and the vagina.

The author, having shown animal mucus to consist of shreds of normal epithelium detached by a physiological process, suggests the propriety of substituting the name of epithelium for that of mucus. He next proceeds to investigate those conditions in which the epidermis, though in other respects sound, becomes loosened from the external skin in larger or smaller portions, the result of something abnormal in the cutaneous organ, as in vesication, burning, or certain eruptions. Such may arise,—1st. Through mechanical violence; 2nd. Through serous effusion beneath the epithelium from irritation of the mucous membrane, burning, and the like; this description of blister may be occasionally perceived upon the tongue, and the globe of the eye; 3rd. At the termination of several diseases of the mucous membrane, nearly allied to the acute exanthemata. As this point will be more fully discussed by-and-by, it is only necessary to indicate in this place the remarkable instance of membraniform coating of the tongue, mouth, and lips (probably, also, of the rest of the digestive canal) during gastric irritation.

It is the unloosed covering of the tongue which constitutes the characteristic fur. This phenomenon would seem to show that the separation takes place not merely at the part affected, but throughout the whole extent. The same holds good with respect to certain diseases of the skin; thus, in scarlatina, even when the eruption is scanty or wanting, desquamation uniformly supervenes, and is then the only pathognomonic sign.

It is to be understood that the mucus so secreted may not only contain the elements of the external epithelium layers, but likewise the smaller cells of the internal layers; and that cylindric epithelium cells, nay, even the ciliated cells, are to be detected therein. The elements, then, are not so scattered as in the former instance, but occasionally united to coherent flaps of skin.

In the *second* case the production of the skin is, indeed, increased pathologically, but its elements are not, or at least not essentially, changed; it is a true hypertrophy of the external skin. By this process are formed callosities, both upon the external

skin, and upon mucous membranes provided with a firm *plaster-epithelium* (see Müller's Archiv., 1838, p. 126); occasionally augmented desquamation is the result. To this category belong pityriasis, and probably other forms of squamous disease of the skin, which run their course without trace of inflammation or general disorder. Similar perfectly local defined desquamations, without pain, or symptoms of disturbed function, occur upon the mucous membrane of the throat and fauces. There are some persons who in the morning, particularly, hawk up thick, whitish-yellow, loose sputa, while in perfect health. These sputa consist of nothing else than laminæ of epithelium from the most external layers, and are to be distinguished from the tonsillary mucus.

The author next points out the condition in which the external skin falls off ere it has attained maturity of development, instancing the soft moist scales which are continually forming, and being detached in the vicinity of atonic ulcers of the feet, the scales of humid herpetic eruptions, and so forth. The elements of these scales are neither so thin nor so dry as those of the external skin, but are large and flat, with a distinct nucleus, like the scales of the epithelium. In such situations the cutis, from its reddish colour, its glistening appearance, and its moistened state, strongly resembles mucous membrane. Laminæ of epithelium, having neither the size nor the flattened form of the normally detached epithelium, are found in the sputa and in the vaginal mucus, &c., under circumstances which the author cannot explain.

He now proceeds to the most important part of the inquiry, that in which the formation of the external skin deviates from the condition of health, and in the matters thrown off are contained the anormal elements. These have generally been designated mucous globules (*schleimkörperchen*, *schleimkügelchen*), and much pains have been taken to distinguish them from globules of pus, but in vain.

In the fluid mucus of the mouth, in the saliva, in the limpid nasal mucus, even of healthy individuals, we find, here and there, roundish, and in the fresh state slightly granular bodies, of from 0.003 to 0.007 of an English line in diameter. They are procured, mingled with a few shreds of epithelium, whenever the handle of a scalpel is lightly drawn along the inner surface of the cheek, and more abundantly in the mucus which accumulates between the gums and the root of the teeth, by simply pressing the gum upon the edge of the lower-jaw.

In some of these granules we are able to distinguish, by the help of the microscope, more especially on the addition of a little limpid mucilage or water, a faintly transparent, oval or round nucleus, containing a darker central one. Acetic acid, as Güterbock has shown, renders transparent the investment of the mucous globule, and ultimately dissolves it. The nucleus is differently affected according to the strength of the acid. Largely diluted it makes it in some mucous globules paler, without any other change taking place; in others, again, the nucleus is seen cleft in an eccentric manner; usually, however, we perceive upon two opposed points of the periphery in the shorter diameter of the oval nucleus a sort of puckering of the margin, proceeding more or less towards the centre, as represented in *fig.* 10; sometimes, however, the periphery presents a triangular or even quadriangular impression, *fig.* 11. In a few of the mucous granules the change goes no farther, though in the greater number it passes from mere puckering of the margin to positive cleavage, so that the simple nuclei sometimes parted into from two to four segments, having a diameter of from 0.0009 to 0.0002 of a line, or even less.*

We find in the habitude of the mucous globules, with acetic acid, three changes, which may be regarded as so many grades of development, and of which the transition

* In order to perceive these progressive changes, it is necessary to employ the acid extremely diluted (one drop to a teaspoonful of water); and in such wise as to preserve the object in focus during the chemical action. The author has contrived, with this view, an apparatus remarkable for simplicity, namely, a fine linen thread, of which one end is inserted into the liquid containing the mucous globules, and at the same instant covered with a thin disk of glass, while, upon the other end, is put a single drop of the dilute acid, which, by capillary attraction, is promptly diffused through the fluid under examination. By this means all violent movement is guarded against while mingling together liquids on the microscope stage. The minute bodies resulting from the breaking up of the simple nucleus, are roundish or oval, with a sharp, dusky profile, and a central depression; sometimes they have an annular appearance. They come into view as soon as the acetic acid has completely dissolved the envelope; and are seen swimming round and round, two or three joined together, which soon become isolated and disperse. With concentrated acetic acid the solution of the envelope and the cleavage of the nucleus take place too rapidly for recognising the different steps. This was the fallacy in the observations of Güterbock and Vogel, which are otherwise in point of accuracy indisputable. It need hardly be noticed that all the changes which acetic acid determines in the mucous globules must equally take place within the body, whenever the fluids which serve as vehicles for these are acidulous, as the saliva, gastric juice, &c.

of one into the other may be demonstrated. In the first stage the globules are not to be distinguished from the epithelium cells of the mucous or salivary glands, whose envelope dissolves in acetic acid, and whose nucleus, though undissolved, becomes paler. The subsequent transformation admits of two opposite explanations: either those nuclei which split by the operation of the acid are immature and not yet sufficiently firm, or the disposition to fissure depends on decomposition, so that those which split the most easily are the most advanced in maturity. The author has shown elsewhere that the mucous globules come from the glands, and are evacuated simultaneously with the secretions, but only when the secernent energy is considerable. Hence it may be assumed, either that the cells of these glands are thrown off, even before they have attained their full development, or that at the period when the secretion is at its maximum, the cells, at the same time, are so changed as to acquire a friable disposition, if they do not directly fall to pieces. He is inclined to adopt the former supposition, because he has never met with cleavable nuclei prior to the application of the acid. Larger cells, quite analogous to the epithelium cells of the superficial layers, are sometimes found in the tonsillary sputa.

The glands of the mucous membranes* bear the same relation to these membranes as the sudoriferous glands to the skin, and what is ascertained of the one may serve to explain the other.

The healthy body, while in a state of repose, does not sensibly perspire, and the secretion from the skin and its glands merely suffices for maintaining a due degree of moisture and exhalation. The secretion of the sudoriferous glands is, under certain circumstances, increased, for a short time, by heat, violent exertion, exciting mental emotions, warm drinks, diaphoretics; and is diminished by cold, depressing passions, &c., pathologically; and it is continuously augmented, as in rheumatic fevers, in states of debility, and prostration of the vital powers. In a pathological point of view it may sink below the normal standard; then the skin becomes dry, resembling parchment, as in exanthematous fevers, in diabetes, in dropsy. Whenever the secretion of the external cutaneous glands is rapidly increased, mucous globules may be discovered, as shown by Leeuwenhoek and Asch. In turning our attention to the corresponding conditions of the mucous membranes, we find that during repose they are moist, but without any aqueous secretion. Many people in good health never require the use of a handkerchief, never wipe their eyes, never spit.

* The author understands by this expression all glands whose excretory ducts open upon mucous membranes.

There is a physiological increase of the secretion of the buccal and salivary glands during mastication, and on the sight of savoury viands when the stomach is empty; of the lachrymal glands during the act of crying, and so forth; and there is a pathological increase of the thin limpid secretion of the mucous glands (*schleimsaftabsonderung*) in what are called mucous fevers, in diarrhœa, in the *status pituitosus*; while there is a diminution in the primary stage of catarrh, and in inflammatory fever. Andral terms the mucous flux in gastrorrhœa and enterorrhœa "a sweating of the mucous membrane:" "il ne nous semble pas déplacé, d'avancer que de même que la peau, la muqueuse intestinale peut suer et suer abondamment, sans qu'il y ait aucune trace d'inflammation." It will be a matter of great importance, in reference to the healing art, when we are able to discriminate increased secretion of mucus from suppuration of the mucous membrane.

In the discharge of mucus and pus the proportion of mucous corpuscles is in general very trifling, and most probably inversely as the amount of fluid secretion. On the other hand, the mucous or epithelium corpuscles may accumulate in the interior of the glands without any material increase of secretion. Such is the state of things in *acne punctata*. In the tonsils, likewise, similar collections take place, and are difficult of removal, on account of their viscosity and firm attachment; they resemble the contents of *comedones*, inasmuch as the cells frequently take up fat and colouring matter, whence the sputa are tinged yellow, brown, or black. Minute inspection shows the mucous granules composing these sputa to be united by a tenacious fluid into single spherules, whose form and bulk are nearly commensurate with the calibre of the tonsillary follicles.

The author, in the next place, treats of the conditions under which the mucous bodies are formed upon the surface of mucous membrane, and adduces the following case in illustration:—An insane female, about 40 years of age, died suddenly of pulmonary paralysis (*stickfluss*), without having any previous thoracic ailment. The corpse was examined about thirty hours after decease. Out of the windpipe there issued a yellowish, tough, frothy mucus, containing flakes of coagulated fibrine, in which, and in the fluid, were a number of mucous bodies with nuclei (friable in acetic acid) and ciliated cylinders. The mucous membrane of the trachea was not essentially changed, but the bronchial membrane was excessively vascular. The inner surfaces of the bronchi were lined with a yellowish, easily detached, and thin, flocky membrane. This last consisted:—1st. Of coagulated fibrine, which could be readily drawn out into delicate filaments, like that of the blood; this formed

the substructure of the false membrane in which the following elements were present. 2nd. Large, distinctly-formed ciliated cylinders with defined ciliæ, inserted by the broad extremity, close to each other, into the fibrous membrane, while their pointed extremities were unattached. 3. Epithelium corpuscles having oval or cylindrical cells, and a smaller nucleus than the ciliated cylinder; they probably belonged to a deeper stratum of the ciliary epithelium, and in the course of development became really ciliated cylinders. 4. Granular globules like the mucous granules, arranged side by side, like Mosaic work, whose nucleus was in a great extent scolloped and cracked by the action of acetic acid; the small central point could be very distinctly recognised. The diameter of the nucleus was 0.002 to 0.003 of a line, in some only 0.001; the diameter of the cells 0.0035, and at the utmost 0.005. These cells constituted, in the pseudo-membrane, the most external layers, or those next to the mucous membrane.

Upon the bronchial membrane there were found, after removing the false membrane, merely some isolated cells of the kind last mentioned, *but no other trace of epithelium.* The mucous membrane of the posterior aspect having been carefully cleaned, was folded in such a way that the inner surface inclined to the epithelium, formed the free margin, and then viewed under the *compressorium.* The membrane seemed smooth, simple, and slightly granular, without trace of fibres; the cellular fibres of the *tunica nervea* folded together, and, therefore, presenting pointed arches, were reversed to the distance of 0.011 of a line from the margin; and this distance represents approximately the thickness of the bronchial mucous membrane. (*See fig.* 13.)

In some instances the author has been so fortunate as to meet with bronchial and nasal catarrh at the very commencement of the mucous discharge; and then uniformly found the elementary cylinders of the ciliated membrane hanging together in considerable shreds, often isolated in the otherwise limpid mucus. During an attack of cold there were seen swimming at this stage the epithelium shreds of the inferior part of the nose as delicate flocks in the evacuation. Very soon, however, did the number of epithelium cylinders and cells diminish, and there appeared mucous granules, with (after applying the acetic acid) a partly simple, partly complex, nucleus, and the characteristic mucous granules with friable nucleus consisted the sputa, even the ripe, during the further course of the catarrh. The difference in the sputa at the different stages depends not so much upon conformation as upon the amount of fixed constituents and viscous coagulum, whereby the granules, even when not compacted, are, nevertheless, so conjoined as to represent membraniform expansions or vesicles, from whose form we may infer their origin. Thus arise the catarrhal sputa of the nose (delicate membranes lighter than water), and those of the lungs (connected globules more or less solid, of the size of the air-vesicles). The form which the sputa assume while swimming in water, and especially the figure and size of the globules just mentioned, are of great importance in respect to diagnosis, as indicating, in chronic diseases of the lungs, the grade of dilatation of the pulmonary cells. The fluid which serves as the connecting medium of the mucous granules coagulates and shrinks in water, looking in the microscope like granular irregular filaments, as when mucus or saliva is drawn asunder between the points of the fingers.

In the more advanced stages of nasal and pulmonary catarrh we can detect in the sputa minute yellow (by reflected light white) bodies, of an irregular form, with obscure granules, large and small, up to 0.005 of a line, of very variable size (0.0008—0.045 of a line) and form, the smaller being round, while the larger are round, oval, cylindric, and sometimes quite amorphous. From their lustre they are obviously adipose globules; out of the larger an oily fluid may be expressed, leaving behind a membranous substance, which preserves pretty nearly its primitive shape. They are soluble in ether, but not in acetic acid, with the exception of a pale flat nucleus, having a central point—the nucleus of the cells. The origin of these *adipiferous* cells could not be precisely determined; although it may be inferred, from the concentric lines visible upon the larger globular cells, that their growth is by successive layers, either from within or without.

In many instances transition-stages between the above globules and the usual epithelium cells were perceptible; there were, besides, several with roundish oval polyhedral cells, gradually increasing in size, in which the nucleus was apparent, without the intervention of any chemical menstruum; the amount of the granules seemed gradually to increase until, at length, the nucleus was enveloped. Upon treating these minute bodies with acetic acid the external membrane disappeared, and the small contained granules were scattered, though still connected by a transparent substance. (*Fig.* 14.) Neither these granules nor the proper cellular nucleus were further acted on by the acid. At length globules appeared in the fluid which closely resembled the above-mentioned *adipiferous* cells, though not so large.

It is thus established that in *some* forms of catarrhal affection the ordinary epithelium is unchanged, and that the exudation, with the peculiar mucous granules, does not take place upon the surface of the perfect epi-

thelium, but that this is first removed unchanged, and the formation of the pathological cells of the mucous granules occurs on its lower side, and immediately upon the mucous membrane. We might, perhaps, suppose that there must have been a previous dissolution of the normal epithelium upon all mucous membranes where we find a secretion of mucous corpuscles unconnected with the mucous glands. In recent leucorrhœa the author has ascertained the number of the epithelium laminæ relatively to the mucous granules to be very considerable; they subsequently diminished, but never disappeared entirely, because the sound portion of the vagina was continually regenerating the cutaneous covering. In gonorrhœal mucus he only perceived mucous granules; here, however, the primary stage may readily escape unnoticed. In many chronic affections the formation of granules upon the diseased mucous surface is prolonged for an indefinite period. Thus, there are mucous discharges from the bronchi, the nostrils, the eyes, the urethra, and the female parts of generation, along with which, even after the lapse of years, these mucous granules continue to come away in quantity. After death, the diseased mucous surfaces are seen covered with mucous granules and streaky coagulable fluid, instead of the natural epithelium, but without ulceration or notable intumescence, only more or less reddened; in chronic cases, indeed, the redness may be absent.

The mucous granules which pass away with the discharge are not to be distinguished microscopically from the minute bodies to be found floating in the serum of vesicles and blisters, in the matter of pustules, or in the aqueous exudation from certain moist points of the skin; they have been long known as globules of pus; they may be observed in similar stages of development to the mucous globules. On opening an artificial vesication, at an early period, when no bigger than a chicken-pock, we find perfect globules of pus already formed in its limpid contents, of which the envelope is fissured by vinegar, as also other globules, resembling the cells of the deeper layers of epidermis, whose nucleus is not affected by acetic acid, or, at all events, is merely chapped.

The purulent globules, therefore, deposit themselves equally with the mucous globules upon the surface of the inflamed integuments, and float away simultaneously with the exuded fluid. Their quantity, in relation to the fluid, is very variable. In the serum of vesicles it is scanty, though less so than one would suppose from the clearness of the fluid; the more abundant it is, the more yellow, thick, and puriform the fluid: thus the transformation of vesicles into pustules is explained. Serum and pus, therefore, bear to each other the same relation as *crude* and *mature* mucus.

It remains for chemistry to demonstrate the solid constituents of purulent serum. Perhaps we might discover, among the secretions of the exanthemata, similar differences to what we find among the excretions of the mucous and serous membranes. It would be highly interesting to ascertain whether fibrine occurs, at any time, in the exudations of the external skin in such quantity as upon the mucous membrane in croup, so as to coagulate spontaneously; because we could then decide whether we ought to consider it in that malady as a mere mechanical mischief, or as typical of a peculiar malignant neuro-paralytic inflammation, as has been asserted by Autenrieth and other German authors. The fact of children dying after expectorating the false membrane, is accounted for by the extension of the disease to the lungs.

There is a very striking analogy between exanthemata and those diseases of the mucous membranes in which mucous or purulent globules (for they are identical) are formed upon the surface of mucous membrane, and which the author, for the sake of brevity, has designated catarrhs. These last have been, by many German writers, described as diseases of secretion, and by the French as inflammations. Some, namely, those complicated with external exanthemata, have been more recently regarded as internal exanthemata,—enexthemata. The relation of these inflammations to the so-called German inflammations of mucous membranes, corresponds to the relation subsisting between superficial erythema (the erysipelas of authors) and phlegmonous erythema, or inflammation of the subcutaneous cellular tissue. In neither case can a boundary be accurately drawn since the transition is gradual. Catarrhs may just as well supervene upon phlegmonous inflammation, in the depth of the mucous membrane, as conversely pass into such. Whatever has been remarked of erythema applies with equal force to catarrh.

After pointing out those febrile eruptive diseases, in which the internal exanthema is a mere complication, he comes to those in which it forms the essential symptom. Such is the case in acute bronchial catarrh and cold, in gastric and catarrhal fevers, with their manifold gradations, complications, and varieties (influenza, yellow fever, hay-fever), in dysentery, typhus (the ulceration of the bowels is surely as well entitled to the name of exanthemata as the suppurating pox); as also, perhaps, in some other epidemics of former ages. Croup, occurring epidemically, may be referred to the same category, although the former is frequently indicative of a constitutional disorder, since its attacks recur so frequently in the same child, whereas a miasmatic, or contagious febrile disease, mostly diminishes and frequently removes the disposition. These are,

perhaps, most likely, febrile inflammations of the pulmonary mucous membrane, which have a typical course, and over which, as Louis has abundantly proved, bloodletting exerts but little control. Cholera is fever with exanthem of the intestinal mucous membrane, whose epithelium peels off, as Böhm has shown. The author does not reckon, in these cases, the exanthem as the essential, but as merely symptomatic of the miasmatic, change in the blood. In the most violent cases this unknown thing destroys, like a deadly poison, ere the occurrence of exanthem, or other appreciable local alteration of the solids; in others, again, the disease runs its course without any, or with but very little, cutaneous inflammation, as in scarlatina, and likewise in typhus.

The participation of the mucous glands in the inflammation of the mucous membrane, is manifested in typhus (and cholera) by swelling, inflammation, and ulceration. In catarrhal inflammations their secretion is arrested in the primary congestive stage, so that the mucous membrane appears preternaturally dry.

After the above mentioned *typico-febrile* catarrhs, he enumerates the catarrhs resulting from external but locally acting causes (saburral states, irritative cough, benign gonorrhœa, *échauffement*, vesical catarrh from calculus, and other causes); lastly, catarrhs of constitutional origin. These latter, like the *dyscratic* eruptions, are for the most part chronic and without fever, provided hectic do not supervene; they affect all mucous membranes, the respiratory tract, the sexual and urinary organs, the alimentary canal, particularly the stomach. Syphilis is remarkable, inasmuch as from being at first local, it becomes, in its progress, a constitutional disease, and then reacting from within outwards, once more determines local inflammation of the mucous membranes and outward integuments.

It is obvious, from the preceding observations, that the most heterogeneous products have been thrown together under the common head of mucus, the name having been applied to signify all solid and fluid matters developed in the organism, and appearing upon the surface of mucous membrane, with the exception of some specific secretions. Now, mucus corresponds in comparison to the external skin, to all the matters secreted upon it; to the perspiration, to the sebaceous substance, to the laminæ and scales of the epidermis, to serum and pus; accordingly, three orders of mucus may be distinguished:—*a*, epithelium, corresponding to the epidermis; *b*, the secretion of the mucous glands, *mucous fluid* (*schleimsaft*), corresponding to the sweat and sebaceous matters; *c*, pus, or rather puriform mucus; each order admits of subdivision into several species.

When it is seen that new cells, closely allied to the elements of the epithelium, are formed upon irritated or inflamed cutaneous surfaces, after the separation of the normal epithelium, which are not essentially different from the true globules of pus, it might be supposed that globules of pus are morbid cells of epithelium; that suppuration is a pathological formation of cuticle, and each secretion of those glands of the mucous membrane, whence mucous globules are eliminated, is a congenerous process to suppuration or new formation of skin. This, however, would be contrary to the view which the author has taken of the formation of pus; much rather ought all these phenomena, formation of skin, of mucous and purulent granules, to be considered as belonging to a more general process; the cells, with nuclei and nuclear bodies (Schwann), occur not on the skin only, but in other textures. According to the above observer, they are met with to a great extent in the early periods of life, so that most of the tissues are evidently developed therefrom. (Froriep's Notizen, 1838, No. 91, 103, 112.) As the formation of cells is the first in the germ, so likewise all new products of the animal frame spring from thence. We accordingly find, during the process of regeneration, nucliferous cells in every texture, both in those in which they remain, and in those in which they become transformed into other elementary formations; the author, therefore, terms them *primary cells*; their identity with the epithelium cells is ascertained from their further comportment.

The regeneration ensues without or with inflammation; and, in the latter instance, either directly (*per primam intentionem*) or indirectly. The reproduction by first intention consists in the formation of primitive cells, which are promptly converted into the texture that is to cover the inflamed surfaces or unite the inflamed surfaces. In the indirect process, primary cells, too, are gradually converted into tissue in the same manner; but, at the same time, others are thrown off, also characterised by their nuclei falling asunder in acetic acid. True primary cells are to be seen in the uppermost layer of the granulations of a running sore; somewhat deeper their envelope becomes polygonal by pressure against the sides; still deeper the same change is perceived, and a gradual transition to cellular fibres, as in the immature cellular texture of the embryo and the surfaces of wounds during direct union. When the formation of primary cells is scanty, the diseased surface secretes a thin serous pus, containing but few purulent globules; when too luxuriant there arise proud flesh, false membranes (most frequently in the inflammations of serous membranes), with or without suppuration. The blood-vessels in granulations and in the exudation uniting separated surfaces, originate just as in the germinal mem-

brane, where, according to Schwann, they appear again to proceed from single primary cells.

It follows from what has been stated, that it is equally unwarrantable to regard the primary cells universally as epithelium cells, as the latter as globules of pus. On this latter head the author makes particular allusion to Gluge's recent researches into Bright's disease of the kidney (Casper's Wochenschrift, 1837, p. 601), where the primary cells in question, enlarged and filled with a granular substance, are described as exudation or inflammation globules. The same holds good with respect to tubercles; and as fat and pigment are the contents of the primary nucliferous cells in the normal state, so, also, pathological substances appear to be deposited, in the first instance, within the primary cells, as Müller has already proved to be the case with most forms of tumour. The so-called exudation-globules of kidneys affected with Bright's disease, comport themselves exactly as the replete primary cells of which the tubercles are composed. Mere microscopic examination might lead us to believe this peculiar granulation of the kidneys to be infiltrated tuberculous matter, but here microscopic observation alone will not suffice.

Explanation of the Figures.

Fig. 1. The cells of the *plaster-epithelium* isolated, in order to exhibit the gradual spreading and flattening of the cells; *a*, those from the lowest stratum of the *mucosa*, or that lying next the cutis; *b*, *c*, from the middle layers; *d*, from the superior desquamated, or layer ripe for desquamation. The cells *c* and *d* are represented just as they appear upon the edge.

Fig. 2. *Plaster-epithelium*, seen from the surface; *a*, from the serous membrane, the deepest layer of a mucous membrane; or the external skin, *b*, from the uppermost layer of the cutis and rete mucosum, with the stratiform epithelium.

Fig. 3. *Plaster-epithelium*, vertical section.

Fig. 4. Transition form.

Fig. 5. Cylinder epithelium.

Fig. 6. Cilliated epithelium: *figs.* 4—6, vertical section.

Fig. 7. Cylinder and cilliated epithelium parallel to the mucous membrane, seen from above.

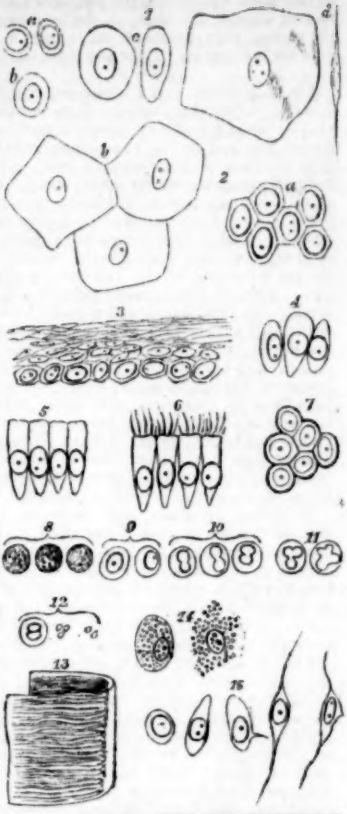
Fig. 8. Mucous and purulent globules.

Figs. 9—12. Successive changes wrought on these by acetic acid.

Fig. 13. Folded mucous membrane of the trachea along with the *tunica nervea*, deprived of epithelium.

Fig. 14. Filled primary cells, out of tubercles.

Fig. 15. Transition of primary cells into cellular tissue, out of granulation.



NOVEL EXPERIMENTS
ON
ARTERIES AND THEIR CONTENTS.

By JAMES TURNER, *Veterinary Surgeon, London.*

[*Abstract of "A Register of Experiments, Anatomical, Physiological, and Pathological, performed on Living Animals, by James Turner, Veterinary Surgeon, 311, Regent-street, London, Author of 'A Treatise upon the Foot of the Horse, and a peculiar Method of Shoeing.'"* London: Longman and Co. 1839. pp. 51.]

MR. TURNER thus prefaces the interesting pamphlet from which the subjoined breviate is made:—

The following description of an unique experiment on the blood-vessels, together with the results, develops some new facts,

so important and startling in the contemplation of animal life, that, in the opinion of the author, they constitute an entirely new field for the inquiry of the physiologist.

I must premise, that I commenced active practice as veterinary surgeon in the British cavalry when a youth of nineteen, and continued attached to the same regiment until after the close of the Peninsular war. My military appointment afforded me many years of valuable experience, and being upon the home service, I also enjoyed very extensive private practice; from thence to the present hour my time has been wholly devoted to the practical part of the veterinary profession. Blessed with undisturbed rude health throughout that lengthened period, I have never been an absentee from the pursuit for one whole week; and all my intervals of leisure have been devoted to theory and experiment. My opportunities for experiments have been so numerous and varied, that I blush with shame at not having produced earlier and better fruits. I have, however, availed myself of some; and if fortunate enough to bring a tithe of them to a successful issue, my ambition will be gratified.

Although precision and dexterity are essential to the success of our chief operations in veterinary surgery, yet their rapid execution is not indispensable, as in the human patient, where its prolongation adds an hundred-fold to the excitement of the nervous system. In the intervals between the struggles of our patients, curious phenomena are forced upon our notice, such as we may have never heard or read of in books.

By the exercise of one remedy alone, viz., the actual cautery, I have enjoyed almost daily for years, an insight into the mechanism of the circulation in minute blood-vessels, such as cannot possibly have met the eye of surgeons when practising upon their fellow-creatures; and I feel inclined to assume, that few, even of the most practical veterinarians, have been indulged with the like inspection of the movement of the living blood-vessels. My reasons for such supposed exclusiveness are, first, because the human surgeon penetrates to the seat of disease invariably by an incision through the common integuments by a scalpel, or by cold steel, in some shape or other; *blood* necessarily follows; and hence a physiological *view of the circulation* within the vessels, is veiled from his sight. On the contrary, in my operations upon horses by cautery lesions, for the removal of chronic lamenesses (consisting of thickened ligaments, tendons, and especially spavin, this last disease being a chronic tumour upon the hock-joint), I invariably make an incision through the skin in its centre, from top to bottom, by a steel instrument with a knife-like edge, but *red hot!* The instant the skin is thus severed, a considerable dilatation of the lips of the wound ensues, the tumour is exposed to view, and, in three instances out of four, without the escape of a single drop of blood, or stain sufficient to soil a white handkerchief, notwithstanding that the horse's hide at this part is very thick. The subcutaneous tissues then continue, for several minutes, presenting a most interesting spectacle as regards the smaller blood-vessel system. My second reason is, that veterinarians, generally speaking, do not practise these deep cautery lesions.

The cellular membrane and fasciæ have an aspect delicately white, upon the surface of which is to be seen a beautiful network of blood-vessels, highly injected, forming a complete arborisation, the skin having receded without affecting their integrity, and the efflux of blood from the highly vascular skin itself being most effectually prevented by the sealing effect of the cautery.

My first remarks will be upon the blood, *as found contained in the living vessels, more especially in the arterial system*, first remarking to the humane, that in surgically operating upon the horse, it has always been with the honest view of rendering the animal serviceable to the owner; yet in every instance that I have been tempted to operate *experimentally*, a thrilling of my nerves has induced me to abandon my purpose. I am not devoid of feeling; and unless the object sought is otherwise unattainable, or of such paramount importance as to seem to give me a moral right, I never use the scalpel.

Hunter, in addition to his own discoveries, having proclaimed those upon the blood of his predecessor, Harvey, to be just and well founded, an overwhelming effect was produced, and has continued unabated throughout Europe for the last fifty years. The whole world assented in affixing the stamp of truth upon *all* his writings; and if ever man had a right to be deemed an oracle, it was John Hunter.

If there was a fatal error in too general an adoption of his doctrines, it is no reflection upon the great man from whom they emanated. They should have exercised more discrimination, although nine out of ten of his multifarious propositions are manifest advances in physiological science. But the great Hunter accumulated such a huge mass of before unknown facts, that even his theories have been held in greater veneration than some discoveries of more humble individuals.

John Hunter, however, was but a man; it is just possible that he may have been in error as to one or more of his fundamental principles regarding the blood, when he broached his great theory of the vitality of the blood, the causes of its coagulation, &c. Those who have perused the physiological works of our own countrymen during the last twenty years, must have been struck by the manner in which they have all har-

monised in regard to the attributes of the blood, viz., its circulation, uses, life, coagulation, separation, constituents, &c. The philosophical chemist occasionally wrangles about some elementary atom which his skill may have separated; but, notwithstanding the additional lights thrown by chemistry upon the blood, the theories as to its physiology, circulation, and coagulation, remain unchanged to the present hour.

I propose not now to question the validity of this universally received doctrine, excepting as I may show the possibility of investigating the character, properties, motion, &c. of the blood *while in the natural state, within its living vessels.* I shall confine myself to an exposition of its characteristics while traversing its natural channels, with the perfect integrity of the vessels, and during the health of the animal, believing that I have hit upon an expedient which will test its qualities and motion after a manner heretofore unknown.

Scepticism as to some of Hunter's doctrines of the blood having possessed my mind, I resolved upon tracing, with jealous scrutiny, the several operations and experiments which had induced him to form those opinions. I soon conceived an utter dissatisfaction as to the manner in which he had conducted his chief *experiments* upon the living animals, with the view of testing the "coagulation" of the blood; because I fancied I could perceive that the anxious object of his search had eluded his mighty grasp.

I then quitted Hunter for a season, and followed the experiments of Harvey, seriatim, upon the living animal, and in vain did I seek for proof positive, even in this high quarter.

Not stopping here, but consulting the works of the living stars of this metropolis, without satisfaction as regards the physiology of the blood, I resolved on marking out my own path of inquiry; but first deliberated on the least amount of animal suffering that could be occasioned. I then invented a mechanical apparatus, the instantaneous spring of which should seize (within a barrel) an inch and a half in length, or more, of either of the larger arteries (the carotid for instance) of any living healthy animal, each extremity of the barrel or spring clasp acting simultaneously in the constriction of the denuded artery. I protest against the old mode of exploring the contents of living arteries. The process hitherto employed has been *too slow to be certain*, and the experimenters have been deluded. Even Hunter lost the race when he undertook to imprison the vital current in its normal condition within the living vessels.

A more subtle fluid, in the natural state of the animal, traverses its arteries than has been dreamed of in the two last centuries. I am in a condition to *demonstrate* this position.

John Hunter, in his "Treatise on the Blood," page 14, says,—"The frequent recourse which is had to the lancet in diseases has afforded the most ample opportunities of observation, almost sufficient to explain *every principle in the blood*, without the aid of further experiment."—Page 14. "There is, I think, more to be learned of the use of the blood in the animal economy from its coagulation than from its fluidity."—Page 17. From these passages I infer that Hunter's theory was founded chiefly upon his observation of the blood *when removed from its vessels.*

Now, let us inquire how he conducted some of the most important of his experiments. He says, at page 65, "I laid bare the carotid artery of a living dog, for about two inches in length; I then tied a thread round it at each end, leaving a space of two inches in length, between each ligature, filled with blood; the external wound was stitched loosely up. Several hours after I opened the stitches, and observed in this vessel that the blood was coagulated, and of a dark colour, the same as in the vein!" Many of us have found the same result. The coagulated state of the blood, and its dark colour, being strictly in accordance with Hunter's expectations, this great observer was lulled into the hope that he had exhibited a fair sample of the identical blood of which the whole mass was composed.

But I make bold to deny the truth of these positions; and I undertake, by the sudden seizure of an inch and a half of the carotid artery of a living animal, to cause an *instantaneous imprisonment* of its contents in their transit. By the result of this momentary isolation, no men will be more astounded than the followers of Hunter, who, with the utmost conviction, contemplated the *circulation*, *life*, and *death* of this mysterious *fluid*.

EXPERIMENT 1.—A horse, eleven years old, three parts bred, was cast. A longitudinal incision, three inches long, was made in the direction of the carotid artery, and deepened with the greatest caution, to avoid blood from the capillaries, till an inch and a half of the trunk was denuded, and its pulsation on view distinctly felt. Very little blood had escaped, and during the pulsing of the artery the bleeding quite ceased from the minute vessels. The connection of the artery to the surrounding parts having been removed for the embrace of the instrument, my newly-invented apparatus was placed under the carotid, pulsating strongly, and the vessel instantaneously seized. A few moments' respite followed, the object sought being securely locked within a case, the calibre of which was sufficiently ample to avoid the slightest compression of the

imprisoned artery, excepting at both extremities, which were hermetically sealed by the sudden constriction of the instrument. Ligatures were now passed round both ends of the carotid, above and below the machine. Without further delay the apparatus, with its contents, was detached by severing the artery, with scissars, close to each extremity of the instrument. The external wound was closed by sutures, and the animal released from the ropes. My curiosity was excited to the utmost to unlock the casket and view the contents immediately, but I placed it in a medium temperature, and stationary, for four hours; I then removed it to a dish, and opened one extremity of the artery by slackening the instrument, when a small quantity of fluid instantly escaped with a slight jet, of a bright scarlet, and of remarkable tenuity, and was dispersed in a splash over the dish, appearing at the moment to be homogeneous, but it instantly separated into two distinct parts,—red particles (I do not say, globules) and a transparent liquid, thin and almost colourless, exactly resembling condensed vapour. The red particles did not float, but gravitated.

I most anxiously watched this interesting fluid, thinking it might be fibrine in solution, or held in suspension; but, strange to say, no part formed into a clot; there was no jellying—no solidification; not a particle would adhere to a pin's point, or even to its head. I then slit open the artery, and found it perfectly empty, not omitting to examine, most minutely, the parietes of the artery at each end, which had encountered the instantaneous grasp of the instrument; but not a particle of *coagulated* blood was imprisoned even there. The red particles, as they appeared to the unassisted eye, I am at a loss to describe; they were of a florid, crimson hue, and very much resembled, in shape and size, the sediment of old port wine, as it appears at the bottom of a wine-glass after receiving the last drops from the bottle, but of a brighter red.

Here arises a vital question. Was this blood? I answer, that it was *not*, according to the general acceptation of that word. But before it can be pronounced what it was, a new system of investigation must be instituted; the chemist, the patient anatomist, aided by the microscope, must bring their lights to bear upon it, and then we may, perhaps, be reluctantly driven back to reconsider the theory of the ancients.

Startled by the result of my first experiment, I began to ask myself whether I was another deluded mortal clinging erroneously to the hope that I had just developed some great physiological truth. I reasoned thus: That which I have obtained was procured under great outrage to the parts concerned, and to the vascular system generally, and the mere circumstance of exposing so large a vessel to the air, independently of the rude application of an instrument, may have instantly revolutionised its contents and subverted the action of the organ. In fact, I had found that the arterial trunk pulsated energetically in proportion to the exposure, and to the degree of irritation to which it was subjected *prior* to the seizure by the apparatus. With these reflections I considered my experiment anything but conclusive, and immediately resolved to carry the same thing out under very different circumstances. It occurred to me that I would make a seizure of the spermatic artery, because every facility might be afforded for the effectual embrace of the vessel without the artery being denuded, or in actual contact with the instrument, plenty of cellular tissue being interposed.

Experiment 2.—A healthy stallion ass was procured, five years old; he was cast; his testicles were well developed. An incision was carefully made in the scrotum, to allow the left testicle to escape from its capsule without wounding that organ or its spermatic chord. Several inches above the epididymis a small puncture was made, through the chord, lengthways, but only in the slight connecting medium between the blood-vessels and the vas deferens, a transparent cellular tissue, thin as gauze, and bloodless, merely for the passage of the instrument, that it might encompass artery and vein without including the vas deferens in the gripe. The spring apparatus having performed its office effectually, it was immediately detached, with the testicle appended to it, and the animal was allowed to get up, retaining the other testicle for a future experiment.

I feel inclined to believe that the spermatic artery and contents were enclosed while in their normal condition. Not a particle of blood or substance had been removed from the chord; it was entire, excepting the very trivial perforation, above described, through a part which was transparent from its thinness. The imprisoned portion of artery was two inches in length, and was not opened for four hours; it yielded *precisely the same result*, but the quantity of the fluid was very small.

Experiment 3.—The external submaxillary artery in the horse is of considerable calibre, considering its superficial situation where it passes over the lower jawbone; and being so familiar with it, as the most convenient part for feeling the pulse, I was tempted to explore its contents, more particularly from the facility of exposing it to view with so little previous dissection.

A healthy ass was cast, an incision three inches in length was made in the direction of the artery, commencing exactly where it crosses the jawbone, and continued upwards towards the face; nearly an inch and a half

was exposed to view of that portion of the artery which was believed to send off few or no branches. The duct of the parotid gland being so contiguous to the artery at this part, it was decided not to separate them, to avoid unnecessary exposure of the blood-vessel. The apparatus then effectually embraced both trunks; ligatures were applied, the animal was released, and the contents examined within *three hours*, with *the same results*; not a particle of clotted blood or coagulum could be found.

From the foregoing facts, and repeated dissections of the living animal, I do not hesitate to avow that I think John Hunter was wrong, when he states, at page 17, as before quoted, "*that more is to be learned of the use of the blood in the animal economy from its coagulation than from its fluidity.*"

I here take my stand. But there are luminaries of the present day who are guided, mainly, in their decision upon all the phenomena of the blood, by its coagulating power,—by the presence of fibrine, as to quantity and quality.

On the continent we find the indefatigable Magendie absorbed by the subject. Vide his invaluable lectures in THE LANCET. This model of a teacher, who wisely rejects every theory which is found to quail under experimental inquiry,—even this cautious inquirer, this just critic of groundless theories, with complacency experiments on the clot of blood recently abstracted from his patients, from the temporal artery, for instance, and then expatiates upon the quality and quantity of the fibrine it contains, as though he imagined that cup of arterial blood to be a fair specimen of the fluid which was traversing the vessel on the instant before his lancet opened a communication between it and the surrounding atmosphere.

This extrication of invisible gas, or rather, *blood steam*, from the aperture in the artery, appears to have been known to the old Greek physicians; but that dazzling theory of the moderns, the "vitality of the blood," has so amused the sages of the last century or two as to dispel all reflection upon the notable fact duly recorded by our forefathers.

EXPERIMENT 4.—A muscular blood stallion, eight years old, was secured in the ordinary way for castration; the scrotum was opened by the scalpel with especial care, to permit the escape of the testicles without in the slightest degree impairing the integrity of those organs; my new apparatus was applied to the spermatic chord above the epididymis, encircling the entire rope. At will an *instantaneous compression* or ligature of all the blood-vessels of the chord connected with the organs ensued. This large vascular gland is isolated in a twinkling, and the contents of its blood-vessel tissue imprisoned suddenly, in their normal condition; and, in order that no communication might be opened between them and the atmosphere, while they retained any animal heat, the testicles were allowed to remain appended to the animal for about twelve hours before they were cut off; and during their excision every drop of fluid which escaped was carefully collected. Then immediately followed a most tedious and patient dissection of the testicle, commencing by unravelling the convolutions of the vessels of the chord, and tracing their branches until lost in the body of the testicle.

After laying open the blood-vessel tissues from end to end, and finding them to contain a dark-red fluid, shall I be believed when I declare that they were devoid of a particle of clot—I mean of congealed or coagulated blood?

EXPERIMENT 5.—From the following experiment an opposite result was produced.

A healthy horse, seven years old, having a good tail, that is, his dock entire, was prepared for docking. The tail was amputated, rather high up with the ordinary docking machine, and severed instantaneously.

I designed to trace the contents of the blood-vessels of the detached portion, as I had before done of the testicle. The Hunterian theory of the *vitality* of the blood will not reconcile these differences.

Accordingly, while an assistant was amputating the tail, I had a firm grasp with my hand upon that portion which was to come off, so holding it that its wounded surface would be the most elevated at the moment of excision, thereby preventing more than a single drop or two of blood falling from it to the ground. Upon immediate examination of this raw uppermost surface, instead of its becoming coated over with a clot of congealed or coagulated blood, I found that, in a few seconds, a transparent lymph covered the entire surface and remained a perfectly thin fluid after the lapse of several minutes, and that a few particles of red blood, in patches, might be seen through this transparent fluid, oozing from the mouths of two or three principal vessels.

In this elevated position I secured the stump, and left it in a temperature of about sixty degrees for nearly three hours, when I returned to trace the blood-vessels. The greater part of the transparent lymph had then evaporated or disappeared, but had not coagulated. In this case I was spared the trouble of a minute dissection; for the moment I inspected the mouths of the principal vessels, I found each completely plugged with red coagulated blood, so fibrinous and tenacious, that I was enabled to pull out strings of blood some inches in length from one or two of the principal trunks. Whereas, in the dissection of the testicle there was nothing like so much

clotted blood to be found in the entire organ as commonly escapes in the space of two minutes from a man's chin in accidentally shaving off a pimple.

REMARKS.—I earnestly solicit the medical community to test the accuracy of these experiments; I leave hypotheses to others.

All modern physiologists have referred to the *coagulating* property of the blood as one of its most interesting attributes. They have always found, that upon blood being spilled from a healthy animal, whether from artery or vein, it has quickly assumed a solid form; when they have imprisoned the blood within the large trunks, between two ligatures, after the lapse of three or four hours, they have invariably found the blood coagulated and dark. But when I lay bare the carotid artery of a living animal, and, by the aid of peculiar machinery, *isolate* two inches of the vessel *instantaneously*, and thereby catch the fluid in its transit, in three or four hours what do I find? A fluid? Yes. Is it blood? I do not know. It appears to the eye like condensed steam or vapour of a bright-red hue, extremely thin and transparent; the colouring particles gravitate, and a limpid fluid floats on them; not a particle of coagulum is to be seen or detected for hours afterwards; the red particles adhere tenaciously to the dish, but the delicate fluid evaporates rather quickly. To account for this difference in the results of the two operations I shall not pretend, until I have adopted the same course of exploration through the venous system as well as the arterial. The veins I have experimented upon, with the apparatus, only in part. With regard to the *trunks of veins* I have not yet sufficient confidence to report progress.

Experiments 2 and 3 merely confirm the first; but experiments 4 and 5 solicit serious reflections.

In strangling the testicle of the horse, it was my design, besides *suddenly* stopping the arterial and venous systems throughout the organ, also to effectually retain within the vascular tissues the full quantum of the blood's *gas* or *steam*, as well as the blood itself, which naturally and properly belonged to the detached testicle; and I think I perfectly succeeded. To the exclamation "What can this writer mean by his *blood's gas or steam*?" I answer, fearlessly that I believe the present generation of philosophers are doomed to retrace the steps of the ancients upon more important points than one in the animal economy.

Those of the very old school have reiterated that no perforation, however small, can be affected in a living blood-vessel without the *instantaneous extrication of vital air*; and they say that the escape of the blood is a necessary sequence of the communication between the vessel and the atmospheric air. By a long persistence in experimental inquiry, I am constrained to go over to the old school, as regards the physiology of blood. In my next essay I expect to substantiate my remarks by absolute demonstration.

By hermetically sealing the trunks of blood-vessels at the instant of separation, I imagine that, besides securing the whole of the blood in its proper vessels, the *halitus* is also preserved. In no other way can I account for the blood retaining its perfect fluidity for twenty-four hours from its death, as in experiment 4. This result suggested to me experiment 5. In the amputation of the tail, although every drop of blood was preserved within the vessels of the detached member, no provision was made for the detention of the *halitus* or *blood's gas*. Did an anxious inspection of this dead tail furnish products corresponding with the vessels of the dead testicle? By no means: they agreed only as containing blood; but mark well how they disagreed; in a much less space of time after the amputation than in the preceding experiment, the blood was found *firmly coagulated within its vessels*. With the testicle I had to trace the vascular canals throughout their ramifications to obtain even small clots of congealed blood, such as would lodge upon a pin's head; while, with the amputated tail, I was spared all trouble of dissection. By merely applying the forceps to the mouth of each trunk, I not only seized a clot, but its tenacity was so great that shreds of coagulated blood, two inches in length, were withdrawn; and, further, each portion of this blood was in a state of solidity, and appeared to correspond exactly, as to shape and volume, with the calibre of its vessel.

Before I give utterance to all that I have already collected affecting the stability of the Harveian doctrine of the circulation of the blood, I must be allowed time to extend my *inquiry*. But in order to carry these views out, I regret to add, that the vena cava, anterior or posterior, or both, of a large-sized living animal, must be embraced by the new instrument—perhaps the heart itself. Some early number of the "Register" shall contain an engraving of my apparatus.

My veterinary compeers are the men most likely to refute or confirm the views here advanced. Every day will afford them facilities for testing the points which I have broached. The medical man must encounter an assemblage of vexatious circumstances, the sacrifice of much time and money, and must even procure veterinary assistance, for surgically operating upon very large animals; for my opinion is, that these researches employed upon cold-blooded animals, or on any animals of very small dimensions, will be futile.

Mr. Turner concludes by saying, that Part 2 will be devoted to the consideration of the venous system, with the narration of numerous experiments.

HEALTH AND DISEASE AT BORNEO PROPER.

By G. Tradescant Lay, *Naturalist in Captain Beechey's Expedition; now Agent of the British and Foreign Bible Society for Eastern Asia.*

The following remarks were made by the writer during a short stay at Bruni, or Borneo Proper, in the spring of 1836, in the month of May, which is reckoned by the people the most unhealthy period of the year. About this time the monsoon changes, the wind that has blown for several months from the N.E. now shifts to an opposite quarter, the S.W.; rain, sudden gusts of wind, and phenomena of a meteoric kind, with great dampness, follow this change. A continual deposition of moisture from the atmosphere, which, according to the beautiful theorem of Hutton, is always the result of a change of wind from a warm to a cold, and from a cold to a warm quarter; and the sudden vicissitudes of temperature which take place at the same time, may be regarded as the leading causes of those maladies, and many lighter forms of indisposition, that happen in this month at Borneo.

HEALTH AND DISEASE.

It was a very common thing to hear patients complain of dimness of sight and a troublesome secretion from the eye. This was, in a great majority of cases, connected with the existence of the pterygium, or unguis, as it is called by Celsus. The web of blood-vessels extended from either, and more frequently from both, corners of the eye, reached over the cornea, and hindered vision, while the patients complained that they could not see distant objects, and sometimes that things nearer the eye could not be clearly discerned. Hence I inferred that the formation of this membranous web is connected with some disorder in the other parts of the eye. It is, perhaps, improper to speak of this as a distinct membrane, for in all these instances it seemed to be a preternatural development of the conjunctiva, occasioned by the over-action of the blood-vessels that meander through it. This, as it appears in the shape of a loose veil, soft and moveable, is better denominated by the French name *drapeau*.

These I treated with calomel, thoroughly spread by means of a small silver spatula. They yielded after four or five such applications, and the sufferer spoke in the most glowing terms of his recovery. The calomel was mixed with no caustic substance, and seems to have effected its work by emptying the vessels. The general health of the individual was improved by appropriate means, at the same time, for this affection seldom occurs without other signs of disorder and bad habit. One cannot help reflecting upon the virtues of cleanliness, as it is a very rare thing to see an ugly disease without being obliged to note a dirty skin, covered with neglected and sordid clothing. I am inclined to think that the tendency to vascularity in the conjunctiva is occasioned by the habit of exposing the head in the middle of the day, unprotected by either hair or turban. Very few eyes that I examined were exempt from a preternatural thickening of this membrane, though in many instances it did not project far enough over the cornea to create any inconvenience. In no other place visited by us did I find the natives afflicted in this way, and in no other place do men forget to screen their heads by a loose flowing capillamentum, if not by a turban also; I think, therefore, if we place these two circumstances in the order of cause and effect, we shall not be very wide of the truth.

Many complained of pains in their bowels, "*Tajam prutnia mulas.*" This was often linked with a pain in the forehead, just above the space between the eyebrows. A disordered stomach occasioned the pain in the head, and quickened the pulse, while flatulency generated the colicky pains so often painted to us with great pathos and descriptive action. A gentle purgative was at all times sufficient to remove all the unpleasant symptoms.

Many appeals were made for help by those who alleged that they were suffering from pains in the back and loins. An ubat ping gang and ubat pong gong, a medicine for the loins and the lower part of the back, were the never-ceasing themes of application, not among those who really endured aches and debility only, but also among those who were the strongest and most healthy, as they hoped that the production of amatory virtues would be one of its effects. These pains result from excessive venery, as it constitutes the chief amusement of the Pangirans, who dedicate all their leisure to sensual pleasure, and wanton their moments amidst the seductive blandishments of female softness. A score or two of women, upon an average, expect the duty of marriage from a single individual, who, enticed by the witchery of a numerous assortment, and the wily arts of a pleasing address, "baniah chumbania," does more than his best to gratify the whole; and thus is the subject of pain, feebleness, and disappointment, and solicits medical aid with as much feeling and earnestness as he would were he suffering from the stone or the gravel. Another consequence of this is a temporary suspension of seminal secretion, so that a medicine to restore it was sometimes applied for, where no mention was made of pains or aches. A preparation

of this kind would fetch its weight in gold at Borneo, though that precious metal comes hither only in presents from other parts of the island.

A white glairy fluid is often the accompaniment of pains in the back. One unacquainted with their habits would suppose that the patient was afflicted with gonorrhœa; but this is impossible, as they do not stray beyond their harems, and the inmates are too closely watched to make it easy for them to bring home such a disease by transgressing; besides, it is essentially different in its characters; there is no external inflammation nor chordee, but a smarting along the urethra, and a stricture, so that the urine is passed only by little and little, *sedikit sedikit*; the discharge takes place after making water, and resembles the white of an egg. Whether this disease be a modification of the *nimia profusio seminis* described by Celsus, I know not, as he mentions no concurrent symptoms, and, after a little of the old woman's counsel, winds up by saying *vitare et ne supinus abdormiat*.

Impetigo, Kuris of Bruni, Pu of the Sandwich islanders.—The varieties of this disease are very common upon the legs and feet, and not unfrequently upon the hands, and the other parts of the body. The Sultan himself has a constant succession of the lesser kind of pustules upon his feet, which afford him a perpetual source of kingly occupation, in removing the scales of old sores, and letting out the lymph from the new ones. A small blister, or bullula, springs up at first, which breaks, discharges its contents, and leaves behind a bare deep-red spot, with scaly edges. This often spreads till an ugly wound is made, while the surrounding part, in several instances, becomes swollen and painful. The process of the disease seems to be this,—lymph is collected under the epidermis from the diseased or over-active state of the vessels; below, the operation is continued in a diverging course all round, while the epidermis is disengaged and left free, in the form of a thick, yellowish, smooth, and flattened scale, surrounded by a red halo. Without a microscopic view of the textures macerated in water one cannot tell precisely in what state the subjacent parts are; but they seem to have the cellular tissue gorged and broken up, so that blood and sanies often flow out in the more serious cases. In some instances the pustule grows to a very large size before the superincumbent scab is broken, and is then very painful, with a large deep-red areola around the cistern of pus in the centre; it is then solitary; the smaller seem to be gathered into one large one. The worst instances I have seen are on the ankle-joint, which is then much swollen, assumes a dark livid appearance, pied with white, and is cut up by wounds of various sizes. The joint becomes incapable of movement, the foot shrinks, and so does the rest of the limb above the wound. Celsus says that it is incurable; and when we take into consideration the health of the individual, and the mangled state of all the integuments, one may easily credit his assertion.

In the case of a man afflicted in this way I proposed amputation; he intimated his willingness to have the whole of the diseased portion cut off by paring, but said it was not a custom here to lose the bone with the flesh. In milder cases flowers of sulphur, sprinkled dry upon the bare sore, seemed to have a good effect; it is sufficiently corrosive to remove superfluities, and helps as a discutient to discharge the collected juices. In the larger kinds, which continue suppurating a long time before they break, my practice was to take off the scab with the scalpel, dry the wound with a dossil of lint, and then apply another, dipped in flowers of sulphur. This being confined by strips of adhesive plaster served to keep out extraneous substances, which, from habitual neglect, often enter, and keep up irritation till a frightful wound is produced. If fresh lint was applied in this way every day the healing would be accelerated; rest is necessary, for a day's exercise and exposure will undo all the good that has been done for several days previous to it.

Pura, pustulæ.—A pustular disease, which affects children after a certain age. The face, breast, and back are set over with flat-crowned risings, which have thick, puckered margins, and are full of pus. They arise in clusters, and are of various sizes. When the dried cuticle is broken, a bloody hollow remains below, surrounded by a margin rough and elevated. These pustules come under the definition of phlyctæna, since they are characterised by the depressed nature of the summit, and the red angry sore that is seen on its removal. The child of the Sultan's brother was shown to me; the body was sprinkled over with these pustules, but the largest crop was seated upon the back and loins, which presented, from the aggravation of the sores, a frightful sight of raw and broken flesh; its appearance was pale and sickly, so that the disease is connected with the general state of the health.

A variety, or perhaps a distinct species, attacks the face, where it travels from place to place, till the whole, or a greater part, has been traversed, leaving behind it a discoloured and pitted scar, full of puckers, which, it is said, remains for two or three years, owing to the exulceration of the skin during the process of the disease. I saw an example of it, where the tip and wings of the nose had been destroyed, one of the passages shut up, and the other one just perforated. Sometimes it is aggregate, as in the instance just mentioned, and in others spo-

radic, so that the face looks as if it had been pitted by the small-pox. This disorder is not contagious, and confines its operations to children. It seems not to be attended with any kind of illness or fever, nor otherwise serious, save in the sad disfigurement which it produces in the most sightly parts of the body. No alarm is excited by its appearance, but it is looked upon as a common disorder incident to young people.

Two sores of a similar kind I saw one morning in a boy, one upon the forehead and the other below the nether lip; they were large raised pustules, with a great crown, and a rough puckered margin; he was one of the dirtiest fellows I had seen. The constant puddling in salt water, without a subsequent bathing in fresh streams, will not keep the person clean. A plaster, composed of sordes and animal transpiration, will resist all such puny attacks as these to remove it. At Zamboanga the muscular tori had a finished roundness, and the complexion was the hue of health and comfort; at Borneo it is rare to see anything that approximates to it; on all, with very few exceptions, we discover a dirty grain, sores, or the scars that they left behind them, or something upon the surface that bespeaks an unwholesome state of things.

At Zamboanga all the inhabitants wash their persons and their clothes in a stream of water that flows fresh from the mountains. At Borneo they often plunge into salt water, scrub away for a short space, dive, laugh, and talk, and then come forth neither to wash in sweet water, nor to wipe off the salt, but to bask awhile in the sun, till evaporation and the crystallising process have formed a briny deposit, to mix and assimilate with the dirt of the skin. It is easy to conceive that a constant irritation must be kept up, which, when added to the exposure of which they are so fond, is sufficient to induce these ugly and painful deformities. A Malay is proud of his bare foot, which is, if we judge from a Caucasian standard, of a middling size, with a high instep, and toes well proportioned, and standing apart in a radiating manner, like the furls in a lady's fan. But this much-prized item of beauty is never exempt from either scars, running sores, or old scabs,—so unfortunate is this attempt at personal display.

The females are less infested with these scabs, as they wear more clothing and keep their persons cleaner, but the feet of the elder ones are often pied with vitiligo, and by their white and brown marbling, look like a cow's teat, when moistened. These discolourations are more disgusting than the sores, and, in all probability, far more difficult to cure.

Kurap.—A curious exfoliation and cracking of the epidermis, so that the body appears as if covered with scales. These are easily removed, but the fresh cuticle that is formed beneath will, in like manner, break, and roll up as soon as the former is taken off. This defect seems to arise from a peculiar thinness of the outer investment of the body, and to its apparent tightness, so that, as if unable to resist the habitual tension exerted upon it, it splits, and peels off in rings and configurations of various curvature. The most robust constitution seems to be most liable to this disease, so that a well-built good-looking female is often, upon a near approach, found to be ruffled in this unsightly manner. It comes on in childhood, and lasts till old age.

Kurap bulan, so called because it breaks out towards the full of the moon. It is a cluster of sores, or pustules, where the epidermis and a part of the skin being destroyed, the subjacent parts are left bare. About the time of new moon it disappears; at full it returns again. This account was true in the present instance, as the moon was very near her superior conjunction.

ON THE

ADVANTAGES OF A SPECULUM CUSHION.

By J. L. Fenner, *Esq.*, *M.R.C.S.*

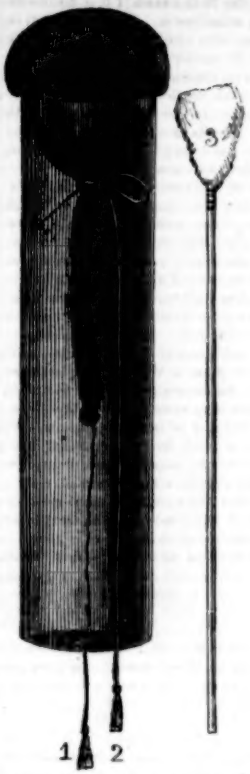
One of the most important modern improvements in the art of healing, in this country, is the departure from the conjectural mode of treating obstinate diseases of the uterus, and the adoption of physical examination by the speculum, so as to bring the various changes which occur in that organ within the scope of ocular examination, and enable them to be studied with as much accuracy as the ophthalmic surgeon displays in the investigation of his peculiar cases. The advantages of the speculum uteri arise from the same indisputable principle which has ever been acted on in the practice of ophthalmic and general surgery. By its employment cases which had been previously mistaken or overlooked,—sufficient in number and importance to silence the abettors of the conjectural system of treatment,—are daily becoming revealed in their true character.

On the introduction of a comparatively new instrument into the *private practice* of medical men it might have been naturally expected that there would be a variety of opinions relative to the form of the instrument, and that each practitioner would extol that with which he was most conversant, without considering the respective merits of each, or what desideratum still remained to be accomplished by the inventive faculty in either one or the other of them. Hence Ricord's two-bladed speculum is the *only one* adopted by some; but this instrument is made but of *one size* for

every case, and, moreover, affords not the least protection to the surrounding parts when caustic applications or leeches are used. The three and four-bladed specula are severally extolled, and are liable to the same objections. The metallic tube of Recamier, and its imitations in glass, find their advocates also; these possess the anatomical absurdity of gradually increasing in circumference towards the handle to at least twice the size of the end in contact with the os uteri. Thus only an imperfect view is afforded of a very small portion of the cervix uteri, while the large diameter of the speculum is preposterously applied to the perineal portion of the vagina, the part the least disposed to dilate, and the most sensitive of pressure.

A tube of glass, or German silver, two lines in thickness, if made of *the same diameter throughout*, possesses every advantage of the various bladed specula; and if the difficulty of passing, without giving pain, a tube of sufficiently large size to expose the whole extent of the cervix uteri be obviated, it must be superior to any other form of speculum, being free from the objections already stated. Without the addition of artificial contrivance the introduction of such a tube of sufficiently large diameter would be attended, in many cases, with pain,—probably with injury. For the purpose of using a tube of requisite size with facility, and without pain, I attach an air-cushion in such manner that its soft elastic projection might previously produce dilatation, and, by overlapping, might protect the parts from the pressure of the edges of the tube, as seen in the accompanying sketch.

Small bladders, or the crops of poultry, partially distended with air, and disguised by being stained with orchel, answer the purpose of the cushions, and can readily be procured. The cushion is formed by twisting the depending portion of the bladder so as to force the air into its superior part, and then tying it with a silken cord in a slip-knot, leaving the end long enough to extend below the bottom of the tube. (*Fig.* 2.) As represented in the sketch ready for introduction, it is to be smeared with some unctuous substance, and then being held in the right hand the cushion is to be applied to the vulva with firm but gentle pressure, and very gradually passed on in the direction in which the cervix uteri has been previously discovered, by the taxis, to be situated. As soon as the speculum, with its cushion, has passed the perineal portion of the vagina and has entered the pelvic cavity, the cord (*Fig.* 2) is drawn to untie the slip-knot, and enable the air which distended the upper portion, and formed the cushion, to rush into the depending part, when, by means of the cord (*Fig.* 1) the tube is left clear, by the bladder being withdrawn.



The speculum cushion was invented for the especial relief of cases of irritation and inflammation, which thus may be examined without producing pain, and a consequent increase of symptoms. In cases where little irritability exists, I adopt a more simple plan, but upon the same principle of producing previous dilatation before the edges of the tube press on the vaginal structure. A piece of box-wood of two inches in length is, by a turner, accurately fitted to the inner edge of the tube, one half-inch of the end being conically sloped to a rounded extremity. By boring a hole in each cylinder a common handle may be used for various sizes, and may be removed when not in use. I trust that this will be rendered sufficiently intelligible by looking at the former sketch. The part overlapping the edges of the tube is supposed to be removed, and the cushion to assume a more conical form. Where the slip-knot appears may be supposed to be the part of the cylinder where the hole is made to receive the common handle; and,

parallel to this, if the stem (*Fig.* 3) be the handle, the cylinder may be removed as soon as the tube has passed the perineal portion of the vagina.

My speculum-case contains tubes of three sizes, five inches in length. The diameter of the smallest size which I employ is one inch, including the thickness of the tube; the second is one inch and a quarter; the third measures one inch and a half in diameter. Besides the advantages of introducing the tubular speculum, with facility and without pain, and gaining by it every possible information, it possesses peculiar merits, such as the following:—The whole extent of the mucous coat of the vagina can be explored most accurately, and passed in review under the eye as it is passed into the cavity of the tube. I lately attended a case of leucorrhœa with one of the most able advocates of Ricord, and discovered, by means of the tube, three chaps on the posterior part of the vagina, which could never have been seen with a bladed speculum. The minor operations so frequently required in the treatment of diseases of the uterus, are also rendered more efficacious and safe by the use of the tube, which may remain a sufficient time without causing any pain. The application of nitrate of silver, ten grains, in a drachm of water,—most useful in abrasion or ulceration of the os and cervix uteri, may be readily used. The injecting of the cavity of the uterus with the same solution, when the peculiar glairy discharge is seen to issue from the organ, may be readily accomplished, not by the instruments usually sold for the purpose, but by a silver canula fitted to a small bone syringe; the unimpregnated uterus will contain but about half a drachm of fluid. Leeches to the os and cervix uteri, so valuable in congestive and inflammatory *engorgment*, and at the critical periods of amenorrhœa and dysmenorrhœa, may, by the tube, be advantageously applied to a large circumference; but where the os uteri is seen to be open I would suggest the application of a piece of lint to prevent the ingress of the leeches, as troublesome though not dangerous symptoms would presently supervene.

In the above plate I have given a sketch of a small mop or brush (*Fig.* 3), one of the most useful and convenient, though the most simple instrument for removing mucus and other substances from the os and cervix uteri, and enabling its structure to be clearly examined, and also for applying solution of caustic, &c. It is a skewer of wood about six inches in length, having a piece of lint or wadding tied round the top.

THE TREATMENT OF LEPRA AND PSORIASIS.

To the Editor of THE LANCET.

SIR:—The *names* of diseases may be considered of very little moment, except in so far as they lead to a knowledge of their nature, and, consequently, of the proper mode of treatment; the *mere name* of a disease can only serve as a guide to empirical practice. Still, however, the misapplication of names is to be deprecated, as tending to increase the confusion which is, at best, but too prevalent in medical science.

I am led to make the following remarks from reading an article in last week's LANCET, on a case or two of "inveterate leprosy," by Dr. Green; but which, according to the nomenclature generally, whether right or wrong, adopted in this country, should have been *referred*, I think, to *psoriasis* of Willan,—the dry or scaly tetter,—characterised by a "rough and scaly state of the cuticle, either continuous or in separate patches, &c., and distinguished from lepra not only by the distribution of the patches, but also by its *cessation* and *recurrence* at certain seasons in the year," as in the case described by Dr. Green, which agrees with Willan's eighth variety, *psoriasis inveterata*, and "consists of a universal scaliness, with a harsh, dry, and thickened state of the skin, commencing with a few irregular but distinct patches on the extremities, afterwards becoming confluent, spreading at length over all the surface of the body, except a part of the face or palms of the hand and soles of the feet. So quick is the production and separation of scales, that large quantities of them are found in the patient's bed. They also fall off by day, and when confined in the linen excite a troublesome itching."—(See "Willan on Cutaneous Diseases.")

In one of the cases related by Dr. Green, we are told that a soup-plateful of the scales might have been collected from the bed of the patient in a morning.

With the treatment adopted by Dr. G. we have no reason to find fault; it only seems strange that the use of sulphur fumigation had not been earlier resorted to; it is, doubtless, one of the most efficient remedies for either psora or psoriasis; and, as the patient was otherwise in robust health, bleeding and evacuants were very proper and necessary to promote the absorption of the sulphur.

Dr. Green remarks, that it seldom interferes with the general health; that "it is not contagious, nor is it the loathsome disease we are apt to associate in our minds." From the use of the negative adverb it is not clear whether he considers it contagious or non-contagious. He further observes, "it

was during the last century medical writers began to describe and more clearly define the disease now acknowledged as leprosy!" But directly after this he says, that "at the present day the profession talk and write of leprous, nervous, scrofulous, and scorbutic diseases, each of them adjective terms, which may imply anything but define nothing." With all deference, I fear the Doctor's remarks will not contribute much to remove the obscurity, or to enlighten us on this subject, although his exertions, as a practical man, I believe to be highly useful and meritorious. And, as to the writers of the last century, it was they who, misunderstanding or disregarding the descriptions of lepra arabum, græcorum, and elephantia, as given by Aretius, by Rhazes, and others,—it was those writers, I say (of the last century), who led to the chaotic confusion, and the grossest errors on the subject; and even at the present day, the disease known here and described by our systematic writers under the name of leprosy, has, in reality, no affinity with the genuine lepra, lepra arabum, or elephantia of the Greek writers.*

This loathsome disease, as we learn from recent reports, is much on the increase in Demerara and other colonies, and many whites affected have latterly removed to northern climates (especially North America), and to this country, with the hope of obtaining some relief from their sufferings.

I am, Sir, your obedient servant,

JOHN HANCOCK, M.D.

49, Welbeck-street, May 7, 1839.

GLANDERS IN THE HUMANE SUBJECT.

AN experiment, recently performed by M. Nonat and M. Bouley, has demonstrated the identity of glanders occurring in the human subject with the glanders which affects horses. A horse was inoculated with some purulent matter taken from a patient labouring under glanders. The animal soon presented all the well known symptoms of glanders, and died on the 11th of March, eighteen days after the inoculation. On comparing the lesions of the nasal cavity which were observed in the inoculated animal with the parts of a horse which had died of glanders occurring in the ordinary way, the points of resemblance were found to be most striking.—*Bul. de l'Acad. Roy. de Med.*, May, 1839.

* The rightly-named *elephantia*, or elephantiasis, was that well described by Rhazes, and now but too well known in the West Indies by the same name,—elephant's foot, or the *Barbadoes leg*,—which is an enormous enlargement of the feet and leg, to which parts the disease is confined; it, in fact, has no analogy with leprosy.

THE LANCET.

London, Saturday, May 18, 1839.

THE Acts for the Registration of Births, Deaths, and Marriages, have been in operation since July 1st, 1837, and the presentation of the Annual Report of the Registrar-General to Parliament may soon be expected. When the Registration Acts were before the Legislature we noticed some of their provisions, but deferred any consideration of the general nature and bearings of the system of civil registration until it had been tested, and experience as well as reasoning should enable us to point out any of its defects, or to suggest any improvements. We shall now discuss the subject fully; for this measure, if properly carried out, must prove of great importance, whether we regard its legal utility, and the facility it will afford for the equitable transmission of property; its application to matters of medical police; the facts which it will contribute to political science, or the light which it must inevitably throw upon medicine. In rapidly reviewing the history and present state of the registration, we shall take as a guide the evidence given before the Committee of the House of Commons in 1833,—the acts themselves,—other authorities which will be indicated,—and the results of observations that have fallen under our own notice.

Weddings, christenings, and burials were registered, to a certain extent, by the monks, before the Reformation. In 1538 an injunction was issued by THOMAS LORD CROMWELL, ordering the parson to record the same facts, weekly, before the wardens; subjecting him for neglect to a fine of 3s. 4d. Nearly similar injunctions were issued in 1547 and 1559. A bill was introduced into the House of Commons, "To erect an office "of registership, to be kept in every dio-"cese;" but, through the interposition of the Clergy, it did not eventually pass. In

1590 Lord BURGHLEY recommended to the QUEEN the establishment of an office for a *General Register* of all the christenings, marriages, and burials, within England and Wales. That great statesman saw the utility of the measure in its connection with the law of property; and he also saw that it would furnish the Government with the best index to the strength, health, and resources of the nation; for, among the advantages of the establishment, he enumerated "That there should be yearly deliver-"ed a *summary of the whole*, whereby it "would appear how many christenings, "weddings, and burials, were every year "within England and Wales, and every "*county particular by itself*, and how many "men-children and women-children were "born in either of them, severally set down "by themselves." The epidemics of the age directed attention to another point,—the diseases by which the people were destroyed. In 1594, orders were issued by the Privy Council to the justices, enjoining them, wherever the plague was, to see that the minister of the church, and three or four substantial householders, appointed persons to view the bodies of all that died, before they were suffered to be buried, and to certify to the minister or churchwarden, of what *probable disease* each individual died. The minister or churchwarden was to make a *weekly* return of the numbers that were infected or died, also of all who died in their parishes, with the *probable disease of which they died*, to the neighbouring justices. The returns, thus collected, were to be entered by the Clerk of the Peace in a book kept for the purpose; and the justices, assembled every three weeks, were to forward the results to the Lords of the Privy Council.* The statistical parts of the scheme would, probably, appear of the greatest importance to Lord BURGHLEY, for, down to the 14th, 15th, and even the 16th century, the labourers were serfs, they were *property*, they could not *possess* property, and the registration of their births, deaths, and marriages, would no more have been thought of, in connection with the descent of lands or chattels, than would the births or deaths of the domestic animals, with which they were frequently confounded in wills and deeds. The recognition and the registration of the serf's birth, marriage, and death, marked a decided step in the progress of civilisation.

The Orders in Council gave rise to bills of mortality; for it soon became evident that no deduction could be drawn from the record of cases of single disease, and that the registry could only be rendered valuable by a comparison with the total deaths, and the deaths from other diseases at other times. It may be asked why the *probable disease* was not, in this plan, certified by medical practitioners? The reason is sufficiently simple: in the 16th century there were very few educated medical practitioners in the towns, and none in the country districts. Hence, although surgeons were at one time employed to perform the office of searchers in London, and to certify the cause of death, women were afterwards substituted, and continued to discharge the duty. Advantage was not taken of the increased facilities of procuring medical information; and an institution which merely tended to improve the health, and diminish the mortality of the community, was overlooked by aspiring ministers, who earned a more brilliant, though passing fame, by lavishing the revenues of the state upon projects of vengeance, ambition, and rapacity: for it has too long been deemed more glorious to destroy than to benefit mankind.

The progress of Lord BURGHLEY's project was estopped by the Archbishop of CANTERBURY; but in 1597 it was probably made in some way conducive to the temporal advantages of the Church, for a Constitution of the Archbishops, Bishops, and Clergy distinctly declared the utility and importance of parochial registers (*quorum per magnus usus est*). A copy of the parish registry was to be sent to the Register of each diocese,

* Macculloch's "Statistics of the British Empire," vol. ii., p. 568.

and carefully preserved. The registration was set in its true light by an Act which originated with a Law Reform Committee, under the Protectorate (1652—3). Marriage was treated as a *civil contract*, and the Act directed the registry of births instead of baptisms. The *parish register* was to be an able, honest person, chosen by the inhabitants of every parish chargeable to the poor. Until after the Restoration, when everything retrograded in the country, the provisions of this Act were found perfectly practicable, and were carried into useful effect. The parish registrar was paid 12*d.* for every entry of marriage, and 4*d.* for every entry of birth and of death. Attempts were made to derive a revenue from the registry of *births*, deaths, and marriages, under WILLIAM III. (1694-1695), and GEORGE III. (1783); but the last Act was repealed in 1794, and the parochial registries for baptisms and burials were regulated by the Act 52 GEO. III., c. 146, passed in 1812, and commonly called Sir GEORGE ROSE's Act. Under this Act the Clergy of the Established Church were directed to keep registers of *baptisms* (not births), marriages, and burials (not deaths), and to make annual copies, to be transmitted to the Registrars of each diocese. Persons making false entries, or wilfully defacing or destroying register-books, were declared guilty of felony; they were to be transported fourteen years (sect. 14). This was the only enactment enforced by a penalty; and by the 18th section half of the penalties levied under the Act was to go to the informer, while the remainder was placed at the discretion of the Bishops, either to be distributed amongst the poor of the parish, or to be devoted to charitable purposes. How much informers, the poor, or charitable purposes, profited by this considerate clause may be easily divined. Cases of law have decided that the entries of *births* made by clergymen in the registers are not evidence of birth, and that as evidence these entries cannot be read.

Viewed as a scheme of registration for civil and statistical purposes, how has the ecclesiastical registration worked? "Very badly," is the unanimous voice of the witnesses examined by the Committee of the House of Commons. In the first place, the Church registry was the registry of ecclesiastical performances, and not the record of physical facts. The birth, the time of birth, and connections of the child, were not recorded, although these were of the utmost importance in a civil and scientific point of view; it was his own act—the baptism—that the clergyman recorded, although the record of this ceremony is of no civil *earthly* advantage. So of the religious ceremonies of marriage and burial; the contract, the death, and the cause of death, were overlooked, while the ecclesiastical ceremonies were registered.

Several disadvantages, both direct and incidental, attended this arrangement. It was a flagrant infringement of the principles of religious liberty,—a remnant of the detestable Test and Corporation Acts,—of the old hateful forms of religious intolerance and despotism. It made parents either violate the sacred convictions of conscience, submit to forms and ceremonies which they considered sinful and absurd, or sacrifice the civil rights and interests of their children. Unitarians were compelled to recognise the Trinity, that their children might not run the risk of disinheritance; Catholics could only be married legally at (in their creed) an apostate Church. The proportion of the population of the country, thus exposed to coercion and indirect persecution, was not inconsiderable; it was ascertained in 1831 that the number of dissenting congregations in England and Wales amounted to 8414, while the number of episcopalian congregations was 11,825; and, at a moderate estimate, the present number of Dissenters cannot be set down at less than three millions. Three millions of the people of this country were driven to submit, against their consciences, to ecclesiastical rites, or to forego all the advantages of civil registration. The latter was the alternative adopted in many instances. Beside

this, the fees of the Clergy kept the poorer members from the Church; thousands of the children of Episcopalians were never baptised or registered. At the least one-fourth of the population of the kingdom was deprived of the advantages of civil registration; and the imperfect registers were of little or no value in a statistical or scientific point. Lord BURGHLEY's great idea was never realised by the ecclesiastical registration.

That the registers might possess their full value, it was necessary that the facts should be carefully recorded, and carefully preserved; that duplicates should be collected at a central office, and indexes, as well as stated summaries, made. How were those conditions fulfilled by the Clergy? In the first place, the entries were carelessly and negligently made in a great many instances. In many parishes the facts were entered by the clerks roughly on a rough-book, which lay about for several months, and was sometimes lost.

"*Mr. F. Parr*, parish clerk of St Saviour's.

"822.* Who keeps the rough-book?—It is kept in the vestry; it is in my custody, for it is in a drawer that is used by me.

"824. Who makes the entries from the rough-book into the parish register?—I do, for the minister.

"825. How many months intervene between the entries from the rough-book into the registry book?—Various periods, perhaps three, or four, or five months.

Other clerks speak to the same effect. Mr. SHEPHARD, the Deputy-Registrar to the Bishop of LONDON, said that the law "encouraged the practice of making rough "entries in a clerk's book, from which the "registers are transcribed, and which is "the source of *innumerable errors and mis-* "*takes.*"—(p. 47.)

The transcripts were never made in many parishes; this is admitted by Mr. SHEPHARD to have been the case in the diocese of London.

"353. Can you state to us the number of parishes in the diocese who make default in transmitting the copies as the Act directs? The number of parishes within the diocese from which copies ought to be transmitted are about 600; and the number of parishes who transmit copies of the registry are upon an average, 440, or 450.

"354. There are 150 who do not?—Yes; there are 150 who do not, upon an average.

"355. Does not that consist of some of the largest and most populous parishes in the diocese?—Certainly.

"357. Are the Committee to understand, of the parishes who have made a return, that you have never prepared any index of the copies sent to you?—No; *of the copies I have received no index has been prepared.*"

As frequently neither duplicates nor copies were made, great facilities were offered for the falsification of the registry. Thus, in a case at the York Assizes, where a large estate was at stake, upon Mr. Serjeant JONES stating that an obliteration appeared in the register which was produced, Mr. Justice ALDERSON, who tried the case, observed, "Are you surprised at that, Brother JONES? "I am not at all surprised; *I have had much* "*experience, and I never saw a parish-registry* "*book in my life that was not falsified in one* "*way or other; and I do not believe that there* "*is one that is not.*"—(Evidence of R. Matthews, Esq., 352.) Upon the importance of the duplicates *not* made by many of the clergy, Mr. GRIMALDI, the solicitor, spoke very decisively:—

"933. After an unsuccessful trial, he desired 'that diligent search should be made for a duplicate, and a duplicate was accidentally found, and did not contain the false entry; and as soon as Mr. WHITE saw the clergyman, and knew of the duplicate being produced, he absconded; he left his town-clerkship of Cambridge and went away. In the first action he had actually recovered a very fine estate, by having forged an entry in the parish registry'."

Several cases of forgery and falsification are on record.

The registers and transcripts, so negligently made by the Clergy, were still more carelessly preserved, or, rather, destroyed.

Mr. JOSEPH PARKES, the solicitor, had much experience on the state of the registers, and the transcripts in the ecclesiastical courts. What is the result of his experience?

* Minutes of Evidence on Parochial Registration.

1138. "In many instances I have found no transcripts returned; in many instances, where transcripts have been returned, I have noticed that there has been a considerable interregnum of many years in particular parts of transcribed local registers; yet I deem the most valuable part of the existing system that of the transcripts, *because it is hardly possible to over-represent the defective and shameful state of the existing parish registers.*"

Other experienced witnesses spoke to the same effect.

"I have seen some (transcripts) rotten, from the improper way in which they have been kept, so that they could not be turned over without falling to pieces.—(*Mr. Grimaldi.*) The old registers have been either destroyed wilfully or through neglect. I have heard of a register having been burnt by a clergyman himself. I have a register in my possession, which I purchased of a bookseller, which contains the marriages of families of high importance; it is a register of Somerset-house Chapel. If any question arose as to the legitimacy of the present possessors of certain estates they might be thrown out of their property by their inability to prove the marriage of their ancestors, without the aid of this volume. —(*Sir T. Philipps.*) The clergy take little pains to preserve the registries of even modern times; notwithstanding the late Act, when they are not resident in their parishes, very many keep them at their private houses. There are several instances of this in the town of Lewes. Mr. Crofts keeps the old registers in a cupboard, where the children, or any one else, could have got at them; and the modern ones at the house of the parish clerk, very much exposed to accidental fires. In some registers there are parts destroyed, whole leaves being cut out. I recollect an instance where the clerk was about destroying the old register, saying it was of no use, but was prevented doing so; and I recollect, when a boy, the parish-clerk of another parish saying that the clergyman used to direct his pheasants with the parchment of the old registers. * * In 1830 we had to prove the heirship of Mrs. Knight. The mother of the intestate and the claimants were baptised at Bishopstone, in Sussex, in 1720 and 1722; but in searching the registry all the entries previous to 1725 were lost. The property was considerable. —(*Mr. W. D. Cooper*, 173.) The registers do not find their way back, or perhaps (as narrated in the Huntingdon peerage case) form kettle-holders for the curate's wife or widow. The same loss has taken place through the parish clerk, as in one case (according to Mr. Bigland), where, being a tailor, the register has in time been converted into measures; or, in another case, where, the keeper's daughters being lace-makers, it has been used in that manufacture; in another, it has even been transformed into the tester of a bed.—(*E. Taylor, Esq., F.S.A*, 684.)

The importance of the registry in the determination of pedigrees, age, legitimacy, and other legal objects, are exceedingly evident.

"*R. Matthews, Esq.*, barrister-at-law, says (588)—It appears to me to be fully as necessary for the preservation of the titles and rights of individuals, to preserve a register of births, marriages, and deaths, as it is to preserve a register of deeds."

Several cases in which estates have been lost through a defect in the parish registries were adduced; and many others, in which accurate civil registration would have saved litigation, and preserved hundreds of families from ruin.—(The evidence of Mr. J. Parkes, Mr. Grimaldi, &c.) Accurate civil registration is of more importance to the poor than to the rich; the rich have peerages, and monuments, and accessory evidence from which the poor are debarred. Lord ELDON, remarking, in the case Walker v. Wingfield, on the defective state of the parish registers, said justly,—"*That evi-*" *dence of relationship is very easily lost* " *among families in the lower order of life, is* " *notorious.*"

The ecclesiastical registration, then, was essentially meagre and defective; negligently performed; the registers and copies were badly preserved and often lost; no indexes were made, and the labour of a search was enormous when it was not entirely fruitless.

THE report of an inquest at *St. Thomas's Hospital*, which will be found at page 313, of this week's LANCET, was forwarded to our office with the title "Extraordinary Scene at St. Thomas's Hospital." The scene, however, presented no extraordinary thing but one, for, unfortunately, such proceedings are very *ordinary* at inquests. We have, therefore, amended the heading. The "moral" of the scene the reporter has wholly missed.

The chief points for contemplation in the matter were,—First, the presidency, at such

an inquiry, of a non-medical coroner. Secondly, the sufferance of the representative of *a client* in a court which contained neither plaintiff nor defendant, neither prosecutor, prisoner, nor alleged criminal. Thirdly, the verdict.

The one extraordinary circumstance was appearance of Mr. SOUTH as a witness,—the medical officer under whose "care" the injured man died. In ninety-nine cases out of a hundred in our hospitals, the Coroner and jury are content with second-hand evidence,—that of a nurse, or a porter, or a clinical clerk, or a dresser, or an untitled student. It has, indeed, hitherto been a rare event to find the medical officer, whose patient the deceased has nominally been, called to give an account of the accident, the treatment, and the result. The surgeons and physicians of our hospitals are too high and mighty to attend at inquests, and account for their deeds, or their misdeeds, and the last thought that appears to enter the head of the Coroner is that of demanding information on these points from the proper witness. The nurse, or the clerk, or some sub-attendant, gives evidence. "The "patient," says the witness, "was treated "with the greatest attention, and in the "most skilful manner. The surgeon saw "him twenty-four hours after admission, and "then trephined the skull, or readjusted the "fracture, or tied up the broken jaw, or "amputated the limb, or bled to fainting. "Everything, Mr. Coroner, was done that "anxiety or skill could suggest."—"Gen-"tlemen of the jury," says the Coroner, "you have heard what this well-behaved "young gentleman, or that respectable old "lady (as the case may be) has stated. No "doubt all was effected that could be accom-"plished; accidents are often severe; pa-"tients *will* die; you had better pronounce "a verdict of Accidental Death." And perhaps the owner of a waggon, or a post-chaise, is ordered to pay a £3 deodand for propitiation. We mean to make no reflection on "Doctor" SOUTH, as the Coroner and barrister, in their guiltlessness of knowing a DUB from a PURE, persevered in denominating the surgeon. We merely illustrate—not what there is no evidence to show did occur on the present occasion, though, by-the-by, it will be observed that not a word was asked respecting the period after admission at which Mr. SOUTH saw his patient,—but what has happened at countless inquests in the hospitals. The appearance, then, of the surgeon, himself, at the inquiry, was a memorable event in the history of hospital inquests, though it was an accidental flash of light across the brain of Mr. LEE, an intruder at the proceedings, and not of the Coroner, that made apparent the propriety of seeking truth at the fountain head. Nor does it seem to have astonished the Coroner in the least to hear of "a client" in his court.

It is as easy to conceive as to describe the wilderness of doubt and obscurity which must have hovered over a medical inquiry at which neither the presiding officer, nor the "counsel for the plaintiff," nor the jury, nor the "client,"—an unfortunate *corpse*,—could put a medical question, or test the correctness of one medical answer. Hardy, indeed, in prejudice, vicious in disposition, stupid in intellect, beyond all amendment, must that man be who can rise from a perusal of the report at page 313, without feeling how great a calamity the cause of justice and humanity suffers by the absence of medical knowledge in the presiding officer at coroners' inquests. The illustration of its necessity is the "moral" of the report.

As regards the verdict, it is, plainly enough, yet a subject for contemplation,—so far as this inquiry elicited the truth,—whether the least culpable party was to be found in the hospital or out of it. The table of calculation on which deodands and pecuniary verdicts, in cases of death, are framed, is a curiosity. In the case of Baron SPOLASCO's destruction of a patient the penalty was under A SHILLING. In that of the Reverend Apothecary STEGGALL, a child's leg was valued at TEN POUNDS. In the case of the unfortunate HENRY GARRETT, the life of a man was set at THREE SOVEREIGNS.

A Treatise on Neuralgia. By RICHARD ROWLAND, M.D., Physician to the City Dispensary. Highley, London, 1838. 8vo, pp. 173.

THERE are few classes of disease the consideration of which present more points of interest to the physician than the multifarious afflictions which are somewhat vaguely denominated neuralgia. Their frequency is daily on the increase, and will, in all probability, progress with the march of civilisation. They are often attended with obscurity in the diagnosis, from not presenting, as many other diseases do, any physical signs by which their nature and cause may be determined. Finally, an error in diagnosis with respect to neuralgic affections is one of the most serious import; for they are most apt to be confounded with, or mistaken for, inflammatory affections, which latter would require a totally different method of treatment. One of the chief difficulties which has hitherto lain in the way of a correct and scientific description of neuralgia is that of exactly defining the nature of the affection which we would describe, and of avoiding the too common fault of confounding some leading symptom of the disease with the disease itself. Dr. Rowland seems to have been aware of this difficulty, upon which he remarks that,—

"It may be objected that many of these causes are themselves diseases, of which the neuralgia is merely symptomatic, and, therefore, that no separate description is required. But, on the other hand, it must be remarked, that in many cases no primary disease can be discovered; and even where this connection is evident, there is often a remarkable disproportion between the original affection and the neuralgia that proceeds from it, for the greatest suffering is frequently occasioned by the most trivial causes; that the neuralgia may be suspended or removed, although its primary cause continue, and is, from its nature, permanent;—that in many cases a cure is effected by means the tendency of which would be to aggravate the symptoms of the original disease;—and that the neuralgia often commences when the affection by which it was excited is declining, or has entirely disappeared."

This is true enough, but we cannot help thinking that affections which depend upon a physical cause, such as the pressure of a tumour, the irritation of a foreign body, &c., should be separated, if possible, from those which are produced in quite a different manner, through the medium of the constitution.

The plan on which Dr. Rowland's Treatise is conceived is simple and methodical. The author commences with a general description of the most common form of neuralgia, its complications, exciting causes, seat, and pathology; he then examines successively the particular forms of neuralgia, according as particular nerves or different internal organs may be affected, and concludes with the history of twenty cases, which illustrate the principal points noticed in the preceding portion of the work. The following general description of the symptoms of neuralgia may be taken as a specimen of the manner in which the author has treated his subject.

"The pain is of a peculiar character, being usually described by patients as thrilling, shooting, darting, plunging, &c. It attacks in paroxysms, consisting either of a single stroke of excruciating agony, or, more commonly, of a succession of shocks, which rapidly follow each other for a few seconds, and then vanish, leaving, in many cases, an obscure aching pain, and rigidity of the neighbouring muscles. It is sometimes seated in a particular nerve, whose course it follows accurately, and darts like an electric shock along its ramifications.

"In the majority of cases the pain shoots towards the terminal extremity of the affected nerve, and is felt most acutely in its cutaneous branches; but it sometimes takes the contrary direction, ascending from the extremities of the nerve towards its trunk.

"It sometimes darts from a central point both upwards and downwards; at others, it flies rapidly along a nerve, and again returns through the same course, to the point where it commenced; at others, and much more frequently than is usually represented, it radiates in all directions, without observing the course of any nervous branch.

"There is also considerable variety in the apparent velocity of the pain as it shoots along the affected parts. In general, as has already been remarked, the shock is instantaneous, but the painful sensation occasionally creeps slowly along the nerve, and, indeed, may be observed of every degree of rapidity.

"The pain sometimes flies from one situation to another, attacking either a remote part, or the same set of nerves on the opposite side of the body; or it may pass from an external to an internal organ. These transitions are often performed with wonderful rapidity; the disease is rarely observed in more than one situation at the same time.

"The space occupied by the pain is also various. It is sometimes diffused over a

large surface, but at others is confined to a point, which might be covered with the finger, and, in general, appears to be more severe in proportion as it is circumscribed.

"The parts through which the pains shoot are sometimes exquisitely tender, but are frequently affected with numbness. In those cases where the pain is spread over a large surface, it is generally described as aching, but in addition to this, the more common lancinating pain darts through the affected part during the paroxysms.

"When the seat of the neuralgia is near a secreting organ, the latter is often stimulated to increased action; a superabundant quantity of its natural fluid is separated, and with this symptom the paroxysm usually terminates.

"In general the seat of neuralgia presents no outward indication of disease, but its colour, temperature, and form, remain unchanged; the skin, however, is sometimes covered with a slight blush, whilst in other cases it is paler than natural; occasionally, also, a moderate degree of swelling, and increased heat, accompany the pain; and the nerve itself, when seated superficially, has sometimes been observed to become prominent during the paroxysms.

"The pulse is seldom sensibly affected, but in some cases it becomes slower at the commencement of an attack, and rises when the pain is at its height.

"In many cases no warning symptoms announce the approach of a paroxysm, the patient being struck suddenly with the most acute sufferings; in others the attack is preceded by heat, cold, itching, throbbing, or some analogous sensation; and occasionally by a feeling similar to the aura epileptica. When the patient becomes aware, by any of these feelings, that an accession is at hand, the utmost horror is often manifested in his countenance; he implores assistance from those around him, or endeavours to summon up all his fortitude to resist the attack, pressing the seat of the disorder with all his might, and sometimes throws himself upon the ground, totally overcome by the agony which he undergoes.

"The attacks are sometimes periodical, returning at particular hours, with remarkable regularity. Several may take place on the same day, or they may assume the quotidian, tertian, or quartan, type. Cases are also recorded where the intermissions extended to several weeks, or even to a longer period. Often, however, the attacks are altogether irregular, occurring whenever the patient is exposed to an exciting cause; and, indeed, frequently where none can be observed. In some cases the intermissions are incomplete, and the disease takes the remittent type, with well-marked, and more or less frequent exacerbations. These cases may be mistaken, particularly when the viscera are the seat of the disorder, either for acute inflammation, or for some organic disease; and it is sometimes difficult to give a decided opinion upon their real nature. This difficulty is, moreover, greatly increased when, as sometimes happens, the lancinating character of the pain is not remarkable, and where the sufferings are increased by pressure over the part affected; a careful inquiry, however, into the history of the case will generally be sufficient to determine the practitioner in his diagnosis."

With regard to the pathology of neuralgia Dr. Rowland observes that,—

"We possess no certain knowledge of the abstract nature of neuralgia, being acquainted with it only by its effects; it may be defined a preternatural elevation of function in one or more sentient nerves, without corresponding excitement in the vascular, or of the great mass of the nervous system.

"It was supposed by Dr. Fothergill to be connected with a cancerous diathesis, an opinion which experience has proved to be totally unfounded. The theory of the syphilitic nature of neuralgia is equally untenable. Cases undoubtedly occur from the absorption of venereal virus, but it is more probable, if the history of that affection be considered, that the symptoms proceed from the changes which it effects in the structure of parts, such as periostitis, nodes, enlargements, ulceration, &c., than that the nerves themselves become affected by the poison.

"The identity of one form of neuralgia and rheumatism is maintained by some modern pathologists, who conceive the latter to be neuralgia of the nervous filaments of the joints; but notwithstanding that there is a striking resemblance between these affections in many points there are others in which they materially differ."

The author also examines at some length the opinion of those who would connect neuralgia with an inflammatory condition of the nerves, and thinks that if inflammation have anything to do in the production of the disease, it must be, in the great majority of cases, inflammation of a chronic nature.

The treatment of neuralgia must, of course, vary according to its exciting cause, wherever this latter can be discovered. When it assumes an intermittent, or even a well-marked remittent character, Dr. Rowland recommends quinine or arsenic, and particularly the nux vomica, in the dose of a quarter of a grain to one grain (alcoholic extract), three or four times a day. His experience does not support the exaggerated accounts which have been published and too credulously believed, of the efficacy of

veratria or aconitine as an external application. The cases related by Dr. Rowland are not detailed with minuteness, but this, perhaps, was not so requisite here, as in many other diseases where physical signs exist. The exciting causes, however, are traced with care, and the symptoms are faithfully enumerated. On the whole we feel pleasure in being able to echo the commendations which a large portion of the medical press has already bestowed on the "Treatise" of Dr. Rowland. It will be found, if we mistake not, to be a valuable acquisition to the medical literature of the present day.

INQUEST AT ST. THOMAS'S HOSPITAL.

A FEW days since an inquest was held before Mr. Payne, in the pupils' morning-room, at St. Thomas's Hospital, on the body of Henry Garrett, a shipwright, residing at Woolwich, who, it was alleged, had died in consequence of having been run over by Mr. Tomlins, a market-gardener, of Bexley Heath, Kent.

Mr. LEE, a barrister, attended on behalf of Mr. Tomlins.

Henry Broughton, jun. examined.—I am a shipwright, and reside at Woolwich; on Sunday night five weeks I was returning home from Greenwich, with my father, when I saw the deceased in the road, opposite the *Lord Howick Tavern*, at Charlton; he was about five feet from the foot-path; at the same moment I heard some person call out "Get out of the road;" I then saw the deceased fall to the ground, and heard him exclaim, "My leg is broken," and a light chaise-cart passed by at a very rapid rate, towards the dock-yard; I called to the driver to stop, but he did not; I saw three persons in the cart, but did not know either of them.

Mr. Lapraik, of the *Lord Howick*.—In consequence of information from the last witness I procured a light, and found the deceased lying in the road, with his right leg broken; I sent for a surgeon, who promptly attended, and advised his immediate removal to the hospital, where I conveyed him in my chaise-cart; I knew no person in the vehicle at the time of the accident, but the day after Mr. Addams, a master baker, of Woolwich, called on me, and stated that he was one of the parties, and he gave the name of the driver and owner.

Mr. Addams examined, with the old and absurd caution, "not to criminate himself."—I was at the *Anchor and Hope Tavern*, Charlton Wharf, on the afternoon in question, in conversation with Mr. Tomlins, between seven and eight o'clock; when about to leave, Mr. Tomlins said, "I am going your road; you may as well ride." I accepted the offer, and we left in company with Mr. Tomlins' son, and a youth named Geal; on arriving opposite the *Lord Howick* I saw a man in the road, who was knocked down either by the shaft or the wheel; I rode as far as the dock-yard, and then got out; the driver did not stop to see if the man was injured; immediately after the man was knocked down Mr. Tomlins exclaimed, "Do you think the man is hurt?" I replied, "I think not, as I felt no jerk;" it was very cold and dark; I had the collar of my great coat turned up; I did not hear any person call to the driver to stop.

The brother of the deceased here stated that Mr. Tomlins had been to the hospital and offered money to his brother to compromise the affair, but he refused to take it.

Mr. Henry Rodwell, "one of the house-surgeons."—I attended the deceased the moment after his admission into the hospital, and found a fracture of both bones of the right leg. He went on very well for nearly five weeks, but mortification of the parts came on, and he died from inflammation of the pleura. He could not state the precise day on which that inflammation came on; the deceased was under the care of Mr. Travers, and had been seen by Mr. South.

Mr. LEE.—It is a very important point to ascertain when inflammation of the pleura came on, and, as Mr. Rodwell is unable to state this fact, I must press for the attendance of Mr. South.

The Coroner accordingly desired Weare, the summoning officer, to send for Mr. S. In a few minutes he arrived.

Mr. LEE.—You attended the deceased, I believe, Sir.

Mr. South.—I should be glad to know whom I am about to answer.

Mr. LEE (*rising*).—A barrister, Sir, and a gentleman; we meet here on an equal footing.

CORONER.—The best way will be to swear the witness.

Mr. South was then sworn.—I attended the deceased, who had a compound fracture of the right leg; he was the subject of an irritative fever, arising from the injury, which, added to a weak constitution, caused death.

Mr. LEE.—You have sworn that the deceased had a compound fracture of the leg, will you inform the Coroner and Jury of the nature of a compound fracture?

Mr. South.—It is a case where the bone protrudes through the skin.

Mr. LEE.—Was that the case in the present instance?

Mr. South.—From the positions in which I found the bones I have not the slightest doubt of the deceased having received a compound fracture.

Mr. Lee.—Now, Sir, on the oath you have taken——

The Coroner (interrupting).—Mr. South must be treated as a gentleman; he is aware that he is on his oath, and that, I trust, is a sufficient guarantee for his speaking only to facts.

Mr. Lee.—I am perfectly aware that he is a gentleman, but I have a duty to perform to my client, and Mr. South has stated that as a reality which he only presumes to be the fact.

The Coroner.—Don't get too warm.

Mr. South (warmly, to Mr. Lee).—I have given my opinion, as a medical practitioner, as to the cause of death.

The Coroner (to Mr. Lee).—Does it make any difference whether it was a compound or simple fracture?

Mr. Lee.—I protest against these repeated interruptions from you, as judge of this Court; I have had the honour of addressing the learned Judges of the land, by whom I have always been listened to with the greatest attention, and if I am again interrupted I will quit the Court, and leave the case in your hands to decide.

Mr. South then underwent a very long cross-examination, but Mr. Lee elicited no new facts.

Mr. Lee.—It is very important to my client that more precise evidence should be adduced of the post-mortem appearances, and no person has been examined on that point.

The Coroner.—I thank the learned Gentleman for the observation, and if the Jury are of opinion that the case should be sent to a higher tribunal, then such evidence would be absolutely necessary.

The Jury, after consulting together for upwards of half an hour, returned a verdict of "Accidental death," with a deodand of £5 on the cart, which was ultimately reduced to £3.

The Coroner (to Mr. Tomlins).—Your conduct has been very reprehensible in driving so furious. The Jury have dealt most mercifully by you. I trust the fine will make you more cautious in future.

The case lasted *four hours*, and during the examination of the medical witness the room was crowded to suffocation by students.

POISONING WITH ALCOHOL.

In a late Number of The Lancet we recorded a case of poisoning with gin which occurred in the person of a boy, about seven years of age. The following example demonstrates that even a small quantity of alcoholic fluid may act with great energy on the organisation of the child:—

Gaspard H., four years of age, at the termination of a convivial repast, was accidentally left in possession of a large punch-bowl, into which the guests had emptied the remnants of their glasses, containing wine, kirsch, rum, &c. The boy, who had already taken more wine than was proper at dinner, drank off the whole of the mixture, which might have amounted to two ounces, and fell, almost immediately, on the floor. After the lapse of two hours he was found, by a medical man, in the following state:—Profound coma, from which it was impossible to arouse him; pulse nearly insensible; skin covered with a cold and clammy sweat; pupils largely dilated; eyes convulsed. A drachm of the acetate of ammonia was immediately administered in a spoonful of sugar and water; cold lotions were applied to the head, and sinapisms to the chest and extremities. In half an hour a second dose of thirty grains was given. On the expiration of an hour the child made a few movements with the limbs, and in another hour the skin had recovered some of its warmth, when the leeches, which had before refused to bite, were applied over the epigastrium. The acetate of ammonia was continued to the amount of nearly half an ounce. The little patient now gradually recovered his senses; a purgative clyster brought away abundant evacuations; the urine was also discharged naturally, but the coma did not commence to disappear before twelve hours had elapsed. The child remained for several days in a state of stupidity. It was a long time before he was completely restored to health.—*Journal de Chimie*, March 1839.

INFLUENCE OF ARTIFICIAL FEEDING UPON THE MORTALITY OF INFANTS.

M. l'Abbe Guillard, chaplain to the General Hospital of Tours, states, in the hospital of X. (which he deems it inconvenient to name), not a single infant has been suckled; all those who are received are nourished by hand through a suckling bottle. In this hospital a very exact account has shown that last year, out of 244 children, 197 had died at the end of the year. Of these, 116 lived only from a day to a month. Out of 127 infants in 1834, there remained only 29 at the end of the year. On the 1st of January, 1835, out of 262 infants, there remained alive only 127 at the expiration of twelve months.

The suppression of the "tours" has shown, also, in other hospitals the murderous effect of this prohibition. Thus, in the Hospital de Poitiers, where the habitual proportion of deaths, in the first month of life, had been 12 to 100, have been now increased in that month above 34 to 100. In the Hospice de Lundun, 2 only out of 11 re-

mained alive at the end of the year, and 4 out of 9 received in the first six months of 1835. These had been all artificially fed, and prohibited from being taken out. At Moulins, in the first months of 1835, 128 were admitted, and 100 of these had died.—*British and Foreign Medical Review*, April, 1839.

ROYAL MEDICO-CHIRURGICAL SOCIETY.

Tuesday, May the 14th, 1839.

Sir B. C. Brodie, President.

ON THE COMPOSITION AND ELEMENTARY STRUCTURE OF THE PUS-GLOBULE.

By George Gulliver, *F.R.S., Assistant-Surgeon to the Royal Regiment of Horse Guards.*

In the course of some researches on the properties of the different animal fluids, the author has been led to observe certain peculiarities in the structure and composition of the pus-globule, which he believes have not hitherto been described, and which he regards as important, because there are particles, both in the healthy and diseased animal fluids, liable to be mistaken for those of pus, and we can only expect to acquire a satisfactory knowledge of each, and of their respective uses in the animal economy, by a careful investigation of their specific characters. The description which the author has given of pus comprehends an account of the physical and chemical properties of two distinct substances which he says compose the globules. One of these appears to be analogous to coagulated fibrine, while the other would seem to be a proximate animal substance, possessing well-marked characters, and, indeed, giving to pus its peculiar properties, such as its gravity, indisposition to putrefaction, &c.

The author's observations are summarily noted in the following conclusions:—

1. That the pus-globule is composed of central molecules, generally three in number, connected together by an external part, which gives shape and size to the whole.

2. That the molecules are dense, smooth, and spherical, measuring from 1-10666th to 1-8000th of an inch in diameter; and that they differ from fibrine, and from any part of the human blood corpuscle, in their form, density, indisposition to putrefaction, and complete insolubility in acetic acid.

3. That they are probably of a peculiar nature, and essential to the constitution of a pus-globule.

4. That the external portion which surrounds the molecules, so as to complete the pus-globule, is analogous to coagulated lymph, or fibrine, being rendered translucent, or dissolved by sulphuric, sulphurous, oxalic, or acetic acids, and the solution in the latter affording a precipitate with ferro-cyanate of potash.

The medium diameter of the entire pus-globule appeared, in the author's mecrometer, to be something between 1-3000th and 1-2500th of an inch, although he observed that there are so many globules, of both larger and smaller size, than here indicated, that probably no measurement of the pus-globule has ever been given which might not be verified by some one of corresponding magnitude.

Mr. Gulliver proposes to designate the little central bodies *pus-molecules*, remarking that these never can be confounded with the *pus-globules*, by those who have once examined the distinction. The paper concludes with an incidental suggestion, as to whether some of the substances, which are shown to possess the power of easily decomposing the pus-globule at the moment of its formation, might not be found useful in the treatment of certain obstinate cases of suppuration.

ON A NEW AND SUCCESSFUL METHOD OF TREATING PROLAPSUS UTERI.

By Benjamin Phillips, *F.R.S., Surgeon to the St. Marylebone Infirmary.*

The object of the author, in the present communication, is to recommend a method which he has employed with success, in bringing about a diminution in the calibre of the vagina in old cases of prolapsus uteri, and thus presenting an obstacle to the descent of the uterus. He relates the case of a patient in the St. Marylebone Infirmary, in whom the infirmity had existed for several years, and who had been unable to bear the irritation occasioned by pessaries of all shapes, and of every material, employed in supporting the womb. In this case the author succeeded in giving complete relief by destroying a portion of the mucous lining of the vagina by means of strong nitric acid. The contraction which ensued on the separation of the sloughs, reduced the vagina to the size of that of a woman who had never borne children.

Dr. Merriman did not object to the operation, but thought it should be resorted to with great caution, and in no case where the patient was not past child-bearing. The danger attending a cicatrised vagina, during parturition, was great, and he had known more than one fatal case of the kind. We must not, by operation, produce a greater evil than existed previously.

Mr. Cæsar Hawkins said, that surgeons resorted to two plans of cure for ectropion, the one by excision, the other by the application of caustic. These plans were analogous to those recommended in the treatment of prolapsus uteri. He could not help

thinking, in the womb disease, that excision was preferable to the application of caustic, but he did not see the advantage of sutures to bring the divided edges of the excised portions of the vagina together, as he considered that the contraction resulting from cicatrisation would be sufficient to effect a cure. Had any member any experience of this operation?

Dr. Marshall Hall thought it but right to mention that he was, as he believed, the first to suggest an operation for contracting the vagina, as a remedy for prolapsus uteri. This operation had been three times performed by Dr. Heming; and it had been successfully repeated by M. Berard and M. Velpeau, in Paris. At one of M. Berard's operations he (Dr. H.) had been present. The operation then received the name of "elytrorrhaphie." It was sometimes necessary to contract the vagina, frequently itself extended far beyond its ordinary diameter, by one-third or two-fifths. Whether this could be effectually done by any other mode than the excision of a portion of the mucous membrane, and the approximation of its divided edges by means of sutures, time and repeated trials alone could determine. He (Dr. H.) found it difficult to imagine any advantage in the uncertain effects of any caustic over the more determinate procedure of removing the mucous membrane by means of the scalpel,—an operation attended with little pain or hæmorrhage. He thought the former remedy would generally fail, and the latter as generally succeed, if care were taken to prevent the movements of the patient from violently reproducing the protrusion and the separation of the ligatures. In one such case the ligatures had torn out, and the operation was, of course, unsuccessful, the subsequent contraction of the cicatrix did not cure the disease. In another case the operation had been performed by mistake; the case was elongated cervix uteri, with protrusion of the os uteri, not prolapsus. The operation was, of course, useless. The diagnosis in this, as in so many other cases, was everything. This operation seemed only adapted for cases occurring in women past the period of child-bearing. M. Velpeau, however, was not of that opinion.

Dr. Moore considered neither operation was admissible in the majority of cases. Members had assumed that prolapsus of the womb always depended on relaxation of the walls of the vagina. Now, he believed this to be, in fact, very rarely the cause of the affection, which arose, in the majority of cases, from a flaccid state of the abdominal parietes, and frequently of the ligaments of the womb themselves in those women who had borne many children. The operations, therefore, whether by excision or by the application of caustic, would not remedy the evil in most cases.

Sir B. Brodie agreed with Dr. Moore regarding the cause of prolapsus of the womb. Great caution was required in an operation like that proposed by Mr. Phillips, and the operator should have at hand some counteracting agent, for fear of the caustic acting too powerfully, or too extensively. Thus, a solution of carbonate of potash would be of service should the caustic used be nitric acid. He thought, in the operation proposed, it would be very advisable to apply the caustic to a slip of the vagina, through its whole length, and this might readily and safely be effected by placing pieces of lint dipped into a neutralising liquid over such parts as you did not wish the acid to touch. He had, with this precaution, applied the nitric acid to those excrescences which grow from the urethra, with the best effect. He questioned whether sutures were so beneficial as Dr. Hall imagined, for he (Sir Benjamin) conceived that the contraction following the simple excision would be as great as though sutures were applied. He had noticed, after removing nævi from the face of children, that there was no difference in the extent of the cicatrisation, whether the edges of the wound were brought together by sutures, or allowed to granulate in the usual manner. It had been suggested that in the case of prolapsus uteri, it would be more advisable to excise a portion of the mucous membrane of the vagina than to apply caustic. He differed, however, from this opinion, and he thought, as a general rule, the surgeon should always, where it was possible, substitute caustic for the knife, in all minor operations. Serious constitutional mischief would be found, in the long run, much more liable to follow the use of the knife than the application of caustics. Erysipelas, for instance, rarely occurred after the use of the latter agent. He recollected only one case in which any serious result followed the use of caustic, and this was in the case of a lady from whose face he removed a small tubercle by the potassa fusa,—erysipelas of the head supervened, and she died. No surgeon of experience, on the contrary, could fail to have met with many serious results following even trivial operations by the knife. Regarding the operation in question, he thought the safest mode was to apply caustic; for should the operator—and any surgeon might meet with the mishap—penetrate beyond the mucous membrane of the vagina, the most fearful consequences might ensue. He recollected a case in which a bougie was thrust through the mucous membrane of the rectum, and the patient died in a few days from enormous infiltration into the subjacent cellular tissue.

Mr. Benjamin Phillips considered that a great number of cases of prolapsus uteri depended on relaxation of the vagina; the operation he had proposed would, therefore,

act as a direct cure in such instances. But should the prolapsus depend upon such causes as those mentioned by Dr. Moore, even then the mechanical obstruction to the descent of the womb, produced by the contracted vagina, would also be a successful mode of treatment. Of course he never intended that this operation should be resorted to in women who were not past child-bearing. Yet even this might not, in all cases, be a sufficient reason against it. In the case he had detailed, the vagina was only contracted to the size of that of a woman who had not borne children. One great point in favour of the operation he had proposed was overlooked by the advocates of excision, and that was, the great objection that many patients had to the knife. This was the case with the woman who formed the subject of his paper. Besides, the operation by the knife, and the application of the sutures, was by no means an easy one; while the use of the caustic was more easy, simple, and quite as free from pain.

Mr. CURLING had seen a few instances in which excision of a portion of the mucous membrane of the vagina had been resorted to for the cure of prolapsus of the womb. The sutures, though applied in the manner recommended by Dr. Hall, were with difficulty reached and removed. In one case which was operated upon, the patient, though it was not previously ascertained, was subject to tape-worm, and perished a few days after the operation. A large tape-worm was found in the intestines, and slight marks of peritoneal inflammation in the neighbourhood of the sutures; there was also infiltration into the cellular tissue. He was more inclined to the use of the caustic than the knife.

REMARKS ON THE REMOVAL OF TUMOURS BY DELIGATION.

By ROBERT LISTON, *Esq., Surgeon to University College Hospital.*

The object of this paper is to afford an additional recommendation of a practice, applicable to the ligature of vascular tumours, which has been again and again laid before the profession. The author is induced to bring it forward on the present occasion, because it was not noticed in either of two papers on nævus read lately before the Society. The plan alluded to consists in dividing the skin at the base of such tumours before tightening the ligature, in order to avoid including it in its noose. By thus modifying the operation, the author considers that several objections to the use of the ligature are avoided; namely, the intense suffering which attends its application in the ordinary way; the imperfect strangulation of the included mass; the bleeding which sometimes occurs on the separation of the sloughs; and the deformity caused by the destruction of the cutaneous and other tissues.

Several cases are alluded to in the paper, most of which have been published in THE LANCET within the last two years.

Dr. MARSHALL HALL observed that he was still of the opinion he had formerly expressed, viz., that the treatment by means of a very small knife, or cataract-needle, was that to be preferred. It was unattended by pain or hæmorrhage, and was not followed by scar. If repeated often enough, and if time enough were given for Nature to work her changes, it would effect everything that we could wish. We had, in fact, only to replace the nævous structure by cicatrix, and the cure must be accomplished. Now, this might be done without sacrificing the skin, or inflicting more pain than the prick of a needle, and without inducing hæmorrhage. Everything might be done under the skin, and preserving the skin, which could be effected by ligature, excision, or caustic. We might pierce the nævus from one point, in various directions, in the first instance; break it down fearlessly, in the second; and we might, by a little care, even apply a ligature, preserving the skin; for this purpose a proper instrument, armed by a ligature, might be made to pierce the nævus near its edge, or to pass along one-half of its circumference, then to pass out at the opposite edge, and be introduced as before, and passed along the other half of the circumference; it might then be tied, and it would simply involve the nævous structure, exclusively of the skin. He repeated that everything that could be done sacrificing the skin, may be done preserving that structure, and, by doing so, avoiding pain which has induced convulsions, hæmorrhage which has induced fatal exhaustion, and a frightful scar. The only objection to this mode of operation was the time required, and the impatience on the part of parents and practitioners the only source of failure. He believed the profession were still in ignorance of all that it was calculated to achieve.

Sir B. BRODIE said that he was surprised that in neither of the papers on nævus read this session, nor in the discussions upon them, had any allusion been made to the very simple mode of treatment by pressure. A great number of subcutaneous nævi could by this means be effectually cured. In the case of a very large subcutaneous nævus on the back, in which he was divided in opinion whether to use the knife or ligature, he determined, eventually, to try the influence of pressure. A piece of ivory, rather larger than the nævus, was placed over it, and there secured by sticking-plaster and a bandage; the pressure exerted was not great; the nævus entirely disappeared under this treatment. In another instance, in which the nævus was situated on the crown of the

head of a child, very near to the fontanelle, no operation would have been advisable; the head was shaved, a piece of sheet-lead applied over the nævus, and kept on by strips of adhesive plaster; in a few months the tumour disappeared. This plan was applicable to many cases of subcutaneous nævi. Occasionally, also, it might be serviceable where the skin was slightly involved, but in cases of pure cutaneous nævi, sloughing would follow the application of pressure.

The next meeting will be on the 28th, not the 21st, as erroneously printed on the cards.

THE ERRORS OF A GENERAL PRACTITIONER.

To the Editor of THE LANCET.

SIR:—I was considerably amused, upon seeing, in your last, a doleful letter from "A General Practitioner," in which, having first *invented* "unaccountable alterations," in the Pharmacopœia, he proceeds most mournfully to complain of them, and requests that they may be made "as public as possible."

No doubt there are many iniquities to be "laid to the charge" of the old ladies in Trafalgar-square, but still we should not create misdeeds where they do not exist, nor raise unjustifiable accusations against them, sinners though they be. My gallantry will not suffer me to sit still and see them insulted; so here goes,—"Lay on Macduff."

"A General Practitioner" says, "I have been for some time in the habit of administering the liquor arsenicalis in chronic diseases with much care and some success, and had just arrived at the conclusion that it had generally been exhibited in doses too large, and for an inadequate length of time, when I was a little baffled in my inquiries, by a phial being returned on my hands, with a message from the lady to whom it was sent, to the effect that the medicine tasted stronger and smelt rather more of scent than usual. Upon inquiry I found that the contents of the phial, had been mixed from a bottle of the liquor arsenicalis recently arrived from Apothecaries' Hall, the appearance of which [along with the *scent*, which the old ladies left behind them] led me to examine the formula in the new Pharmacopœia, where I, to my *surprise* and *consternation!* discovered that *eighty-five* grains of arsenic, were substituted for sixty-five [sixty-four it is] and five fluid drachms of the tincture of lavender for four fluid drachms." "My respect! for the College of course prevented my throwing the blame on that learned body, but my patient looked very incredulous when I protested there was no mistake."

Now, if when "A General Practitioner" examined the formula for liquor arsenicalis he had recollected (or known) that there are *now twenty ounces to the pint*, in the new Pharmacopœia, and only *sixteen* in the old, it would have cleared up his doubts, dispelled his "surprise and consternation," and prevented his attacking "*respectable*" and inoffensive old ladies. Now, the proportion of arsenic is exactly one-fourth of a grain to every half-drachm of liquor arsenicalis, so that the additional sixteen grains are added *on purpose* that it might be the same strength as before. Why it smelt more of *scent* in this instance was, I presume, that it was but recently made.

Can it be possible that there is any one connected with the medical profession, from the "respectable physician" to the boy who carries out the medicine, ignorant of the fact that calomel is now called chloride of mercury? Yet, though the Pharmacopœia has now been published three years, "General Practitioner" has only just found it out, and is so elated with the "discovery!" that he publishes it, and hopes it will be made as "public as possible." This reminds one of the anecdote of the clown (who must have lived in the same corner of the world with "General Practitioner") who, having only now heard of the death of King William, had been praying most lustily for the last two years for his Majesty's health, and that he might enjoy a long life. "General Practitioner's" "*curiosity* began to be excited," so he turns to tinct. opii, and *discovers!* "that fifty minims of the new Pharmacopœia are equal to sixty of the old." This is a discovery indeed; since both are exactly the same strength, nineteen minims containing one grain of opium,—the additional quantity of opium being added on account of the alteration in the pint measure.

"He had intended to pursue his researches, but his memory would retain no more." I hope he will favour us with all he makes as they must needs be *important!* As he has not given us any more, I will conclude with his own words:—"Hoping that he will see the necessity of committing both the old and new Pharmacopœia to memory, which he must do unless he wishes to be convicted of manslaughter at a coroner's inquest." I remain, Sir, yours faithfully,

Vox.

ST. GEORGE'S HOSPITAL.

HYSTERIA (?) AND DIARRHŒA.

JANE WATT, aged 27, admitted under the care of Dr. Seymour. On examining her in bed, Dr. Seymour found the abdomen much swollen and prominent, but could detect no perceptible fluctuation or tumour of any kind. The tongue is very much furred, and

she complains of great thirst, with occasional severe vomiting, which she says is bloody. She has been very much troubled with diarrhœa for some weeks past, and she says that her evacuations are also bloody, and occasionally contain pieces of flesh. During the last year the catamenial secretions have been very scanty and irregular. There is a profuse leucorrheal discharge. Beef-tea and arrow-root for diet. To be bled to twelve ounces, and to take :—

Chloride of mercury, 4 grains ;
Opium, 1 grain, at bed-time ; with *Castor oil*, half an ounce, early to-morrow morning.

9. The evacuations are loaded with bile, tongue still white. Pill and draught to be repeated.

10. The bilious dejections continue to be very copious, and the abdomen is less tumid and swollen, and the tenderness on pressure is diminished. She complains of some choking in the throat, and tells a long tale of hysterical ailments. The pill and draught to be repeated, and half a scruple of assafœtida to be taken three times daily.

13. Abdominal tumour almost gone ; bowels open freely ; tongue moist and cleaner ; some hysteria remaining. Assafœtida to be continued ; pill and draught omitted ; ordinary diet.

15. Better in every respect.

17. Some slight inflammation of the bursa of the left knee ; pulse 120 and weak ; the bowels confined. A senna draught to be taken directly, and in the evening to take the following,—

Colchicum wine, half a drachm ;
Antimonial wine, half a drachm ;
Camphor mixture, 2 ounces.

22. Better ; the pains in the legs relieved ; bowels purged from the colchicum ; pulse 100, of moderate strength. Medicines to be continued.

27. Convalescence from the gouty pains ; complains much of dyspepsia.

Powdered rhubarb, 6 grains ;
Carbonate of soda, 15 grains ;
Powdered columba root, 3 grains ;
Compound cinnamon powder, 2 grains.
To be taken every morning in a wine-glassful of water.

Dec. 2. The pain in the limbs has returned, but unaccompanied with redness or swelling.

Blue pill, 2 grains, at bed-time.
Infusion of senna, 2 ounces ;
Colchicum wine, half a drachm ;
Burnt magnesia, 10 grains ;
Tincture of cardamoms, 1 drachm ;
Tincture of senna, 1 drachm ; early to-morrow morning.

6. All the gouty pains have disappeared, and the abdominal swelling and hysterical choking having likewise taken themselves off ; she thought she could not do better than follow their example.

UNIVERSITY COLLEGE HOSPITAL.

SOLID ŒDEMA OF THE LEG.—AMPUTATION.—THE ADVANTAGES OF THE FLAP AMPUTATION VERSUS THE CIRCULAR OPERATION.—ERROR OF SIR G. BALLINGALL.

T. W., aged 45, a farmer, was admitted January 28, 1839, under the care of Mr. Liston. He is of intemperate habits.

History.—Thirteen years ago he received a kick on the shin from a horse, which laid him up for some time. Poultices were applied, and suppuration took place. The abscess was opened by a lancet, and a great deal of inflammation followed. The wound healed, with the exception of the size of a shilling, and has been frequently very bad. About sixteen months since his foot began to swell, and has continued, he taking no notice of it up to the present time. The ulcer on the shin has also increased extensively during this period.

Present Symptoms.—There is now a large, unhealthy-looking ulcer, about four inches square, on the anterior aspect of the left leg, and almost encircling it, accompanied by solid œdema of the foot to a great extent. His general health has been greatly injured by the long continuance of the disease.

Jan. 29. Water-dressing to the ulcer ; bowels to be opened by house-medicine.

Feb. 2. Mr. Liston has determined on amputation, the patient having long since made up his mind to submit to it ; and on the 4th Mr. Liston performed the antero-posterior flap operation above the knee. Three arteries were secured, and cold water was applied. In the evening Mr. George brought the flaps together in the usual method pursued in this hospital. Ordered an anodyne.

9. Stump bandaged to-day ; in excellent spirits, and going on well.

12. Complains of restlessness and great thirst ; stump rebandaged ; profuse discharge. At one, P.M., hæmorrhage came on, but was stopped by the application of cold and pressure on the femoral artery. He had been subject to hæmorrhage to a great extent from the ulcer. Mr. Liston saw him, and determined, if the bleeding should return, to tie the femoral artery in the groin. He ordered the stump to be again bandaged, which was done. A little bleeding followed, but was easily suppressed. He complains of increase of thirst and spasm of the stump. At ten o'clock, P.M., hæmorrhage returned, and Mr. Liston was sent for. He secured the femoral artery just below Poupart's ligament,—the blood lost does not exceed a pound and a half.

13 Slept for some hours last night, and is altogether better this morning, and not so restless. A great deal of discharge from the wound of blood and serum.

14. Not had a very good night; rather restless; tongue furred; pulse 102.

15. Had a better night; stump not so painful; but the patient complains greatly of his back. At six, P.M., bleeding came on from the superficial external pudic artery, which had been wounded during the operation; stopped by the application of cold water.

16. Profuse discharge from the stump; coughs a great deal, and spits up mucus streaked with blood.

26. Has been getting rather better since last re ort; ligature not yet come away from the femoral artery, but the wound is healing very fast.

March 10. The ligature has separated; he is in a very comfortable and quiet state, and proceeding very favourably.

March 16. Appeared to be going on wel until this morning, when hæmorrhage again came on, from the point at which the second ligature had been placed. He lost about half a pint of blood; Mr. Liston was sent for, and immediately tied the external iliac a little above Poupart's ligament.

17. This morning bleeding came on from the common femoral, at the point where the second ligature was situated; the hæmorrhage was, however, readily commanded by pressure.

25. Since last report has had no return of the hæmorrhage; he is now in a favourable condition again, and should no unforeseen accident occur will, no doubt, do well.

In making some clinical remarks on this and other cases in which amputation had been performed, Mr. Liston took the opportunity of referring to some observations made by Sir G. Ballingall, in a recently published work, to the effect that the surface exposed in the flap amputation of the thigh was much more extensive than that in the circular operation. He adduces some opinions in favour of this statement, which, however, he acknowledges have but "a distant approximation to the truth." Mr. Liston said, that having the dead body before him, he would demonstrate to the pupils how erroneous it was to suppose that the statement of Sir G. Ballingall was correct. In the circular amputation, if the operation were properly performed, the surface left would represent a hollow, deep, and ragged cone, the apex being towards the divided bone; while in the flap operation there were simply two triangular flat surfaces. Mr. Liston then carefully removed one of the limbs by the circular, and the other by the flap, operation; the extent of surface of the former was at once perceived to be greater than that of the latter, and the space left by the first resembled very much an open nightcap. In this operation, too, the parts were not, he observed, so well disposed to unite as in the flap method.

BOOKS RECEIVED.

A Popular Treatise on the Kidney; its hitherto unknown Functions and Diseases, in connection with the Circulating Animal Oils, &c. With advice to persons on their secretions. By George Corfe. London: Baisler, Oxford-street; Renshaw, Strand, 1839. 8vo, pp. 304.

A Treatise on the Nature of Club-Foot, &c. By W. J. Little, M.D. W. Jeffs, London, 1839. 8vo, pp. 276.

TO CORRESPONDENTS.

There can be no adequate motive for the publication of the letter of Mr. Borthwick in the pages of *this* Journal. We shall give that twaddling imbecile, Samuel Cooper, the compiler, a notice at our leisure; but he is almost too contemptible a personage on whom to bestow even a single paragraph. Since the exposure of his gross ignorance of the *practice* of surgery in the case of the bayonet-wound of the abdomen, the cheek which his inane vanity then received seems to have converted a mere blockhead into a drivelling slanderer. Should we advert to the catheter case, we may quote the letter of Mr. Borthwick, who has, of course, forwarded a copy of his retractation to the journal in which appeared "the statement of Mr. Cooper," that, he says, has excited his "astonishment." The letter, on the same subject, of Mr. J. F. Clarke, we also withhold from publication at present.

The publication of the letters of *Mr. J. Matthews, Mr. Philip Bolland, Mr. Lovegrove, Mr. J. H. Cuff, Mr. H. Letheby, M.R.C.S., An Apothecary*, and a *Druggist's Assistant*, is rendered unnecessary by the insertion of a similar communication this week, which had been previously received. The letter of a "General Practitioner" was inserted through an inadvertence into which we were led by the fact of the letter having been communicated, in this instance, without *reflexion*, by a Member of the College of Physicians, at the West-end, who, it would appear, is not too well acquainted with his own Pharmacopœia.

A New Reader.—The choice of works would depend on the pupil's standing. But could not our correspondent ascertain what he wants from his own master?

The letters of *Mr. H. Brandon* and *Mr. Clerck* have been received.

Not being acquainted with the circumstances alluded to by *Libus*, we cannot insert anonymous remarks thereon.

A Constant Reader.—No. The party described would be liable.

Veritas and *Mr. Ancell* next week.